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# NEW YORK STATE JOURNAL OF MEDICINE

Vol. 10  
No. 1



January  
1910

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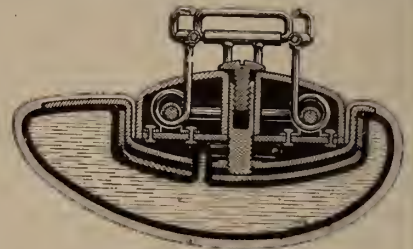
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# NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

ALGERNON THOMAS BRISTOW, M.D., Editor  
Business and Editorial Offices: 17 West 43d Street, New York

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## EDITORIAL DEPARTMENT

### "THEIR MASTER'S VOICE."

WHEN an institution of mercy and healing has been founded by the munificence of one man, its activities organized and directed by other men, masters in their profession, so that it stood like a city set upon a hill, a center of light and leading, a shining example among similar institutions, there is nothing sadder, nothing more painful to the thoughtful mind than to witness its vulgarisation and degradation at the hands of well-meaning but ignorant and narrow men. It is pitiful to see high ideals trampled in the mire. It is pitiful to see the dollar mark break out on the walls and corridors of the House Beautiful and taint it with the modern leprosy so that we would fain cry "Unclean, unclean." It is pitiful to see a hospital staff so at the mercy of a lay board that its members retain their positions at the price of their self-respect. Lay boards of managers have in the past done some strange things, but it has been reserved for the Board of Managers of a once great hospital in Greater New York to distinguish itself and gain a real and deserved but bad eminence. Indeed it ought to change its name and call itself not the Board of Managers, but a Board of Trade. It has promulgated the following extraordinary rule for the staff of the hospital: The visiting surgeons are classified, ranked and assigned to duty not according to fitness or length of service in the hospital, but according to the number of "paying patients" they have sent to the hospital during the fiscal

year. The man who sends the most private patients has first choice of the service, and so on down the line until the man is reached who has sent in the fewest paying patients. He takes the leavings. In the eyes of the Board of Managers he is the yellow dog and a tin can is promptly tied to his tail "*pour encourager les autres.*" It is difficult to see how any body of self-respecting gentlemen could allow itself to be persuaded to inflict so insulting and degrading a system on a visiting staff. Its members must have held the almighty dollar so close to their eyes they could see nothing else save its yellow glare. It is a matter of astonishment to the medical profession that the members of a self-respecting visiting staff could tamely submit to such ignominy. They have evidently heard "their master's voice" and the crack of the superintendent's whip. As a result of this base policy the hospital has already lost two of its best surgeons, men who have been associated with its honorable and brilliant past for over twenty years, and who refuse to accompany it on its downward path. The members of the staff who feel constrained to continue their relations with the hospital deserve the sympathy of the profession, the men who have resigned, that and something more.

A policy so cynical and vicious will not in the end redound to the advantage of the hospital. Harmony and mutual confidence are essential to the success of any enterprise, but when an institution deliberately pits its men one against the other, it sows the seeds of

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suspicion, jealousy and dissension to reap in the future the fruits of a bitter harvest. Such an institution is false to its founder, false to benefactors, false to its patients, false to the public, and does not deserve the confidence of the community. The standing of a surgeon should be regulated by his professional fitness as determined by knowledge, *experience*, skill, devotion to the interests of the patients and ultimately the results which his treatment produces. This hospital has adopted the methods of the auction room. What it wants is not men of high attainments and scholarship, but rather men who can produce what is commonly known as "dough." It does not need a laboratory or scientific equipment, but an auctioneer's block and hammer, an advertising agent and a bale of green trading stamps. A. T. B.

### THE LAW AND THE PRACTICE OF MEDICINE.

**I**N the *New York State Journal of Medicine*, for February, 1908, will be found an editorial on "The Practice of Medicine by a Corporation Prohibited." In this article it was stated that the Court of Special Sessions of New York in the case of the people against a certain corporation called the John H. Woodbury Dermatological Institute had decided that Section 15, Chapter 344, Laws of 1907, prohibited any but a registered physician from practicing medicine and that the corporation was violating the law. This was appealed from, but the Court of Appeals of the State decided against the corporation, thus sustaining the lower court. This decision was the first of its kind in any State and has been used as a precedent by Mr. Vandiver, counsel of the Medical Society of the County of New York during the past year in the prosecution of several other corporations.

*The Dr. Weeks Medical Office* was twice convicted of advertising to practice medicine and fined \$250. This institution was on 14th Street, and purported to be an anatomical museum with a physician in attendance, who advised individuals in regard to venereal diseases. As a result of the successful prosecution, the name of the Dr. Weeks Medical Office disappeared from the premises and the advertisements of the concern and the busi-

ness apparently was taken over by a registered physician.

*The Dr. Bromley Co.* advertised the sale of a treatment for the reduction of obesity, and included in their advertisements a diagnosis blank. The court found the corporation guilty and imposed a fine of \$100.

*The Policlinico Medico* was conducted by a registered physician and by one Bernardo Mammone. Suit was brought against the latter and conviction secured and a fine of \$100 imposed. After the conviction the premises occupied by the concern were deserted and the business theretofore done by these individuals under the name of Policlinico Medico discontinued.

*The Universal Medical Institute* conducted by Albert S. Del Gaudio was convicted and fined \$100. The advertisements now appear under the name of a registered physician.

Another section of the law which is also new in Medical Practice Acts and is not in the laws of any other State will be found in Section 11, Paragraphs a, b, c, d, e, as follows:

SEC. 11. Registry; revocation of license; annulment of registry.

Every license to practice medicine shall, before the licensee begins practice thereunder, be registered in a book kept in the clerk's office of the county where such practice is to be carried on, with name, residence, place and date of birth, and source, number and date of his license to practice. Before registering, each licensee shall file, to be kept in a bound volume in the county clerk's office, an affidavit of the above facts, and also that he is the person named in such license, and had, before receiving the same, complied with all requirements as to attendance, terms and amount of study and examinations required by law and the rules of the university as preliminary to the conferment thereof; that no money was paid for such license, except the regular fees paid by all applicants therefor; that no fraud, misrepresentation or mistake in any material regard was employed by any one or occurred in order that such license should be conferred. Every license, or if lost a copy thereof legally certified so as to be admissible as evidence, or a duly attested transcript of the record of its conferment, shall, before registering be exhibited to the county clerk, who only in case it was issued or indorsed as a license under seal by the Regents, shall indorse or stamp on it the date and his name, preceded by the words: "Registered as authority to practise medicine, in the clerk's office of . . . . . county." The clerk shall thereupon give to every physician so registered a transcript of the entries in the register with a certificate, under seal, that he has filed the prescribed affidavit. The licensee shall pay to the county clerk a total fee of \$1 for registration, affidavit and certificate. The Regents shall have power at any and all times to inquire into the identity of any person claiming to be a licensed or registered physician, and after due service of notice in writing, require him to make reasonable proof, satisfactory to them, that he is the person licensed, by virtue of which he claims the privilege of this act. When the Regents find that a person claiming to be a physician, licensed under this act, is not in fact the person to whom the license was

issued, they shall reduce their findings to writing and file them in the office of the clerk of the county in which said persons resides or practises medicine. Said certificate shall be *prima facie* evidence that the person mentioned therein is falsely impersonating a practitioner or a former practitioner of a like or different name. The Regents may revoke the license of a practitioner of medicine, or annul his registration, or do both, in any of the following cases:

a. A practitioner of medicine who is guilty of any fraud or deceit in his practice, or who is guilty of a crime or misdemeanor, or who is guilty of any fraud or deceit by which he was admitted to practice; or

b. Is an habitual drunkard or habitually addicted to the use of morphine, opium, cocaine, or other drugs having a similar effect; or

c. Who undertakes or engages in any manner or by any ways or means whatsoever, to procure or perform any criminal abortion as the same is defined by Section 294 of the Penal Code; or

d. Who offers or undertakes by any number or means to violate any of the provisions of Section 318 of the Penal Code.

e. Proceedings for revocation of a license or the annulment of registration shall be begun by filing a written charge or charges against the accused. These charges may be preferred by any person or corporation, or the Regents may, on their own motion, direct the executive officer of the Board of Regents to prefer said charges. Said charges shall be filed with the executive officer of the Board of Regents, and a copy thereof filed with the secretary of the Board of Medical Examiners. The Board of Medical Examiners, when charges are preferred, shall designate three of their number as a committee to hear and determine said charges. A time and place for the hearing of said charges shall be fixed by said committee as soon as convenient, and a copy of the charges, together with a notice of the time and place when they will be heard and determined, shall be served upon the accused or his counsel at least ten days before the date actually fixed for said hearing. Where personal service or service upon counsel cannot be effected, and such fact is certified on oath by any person duly authorized to make legal service, the Regents shall cause to be published for at least seven times, for at least twenty days prior to the hearing, in two daily papers in the county in which the physician was last known to practice, a notice to the effect that at a definite time and place a hearing will be had for the purpose of hearing charges against the physician upon an application to revoke his license. At said hearing the accused shall have the right to cross-examine the witnesses against him and to produce witnesses in his defense, and to appear personally or by counsel. The said committee shall make a written report of its findings and recommendations, to be signed by all its members, and the same shall be forthwith transmitted to the executive officer of the Board of Regents. If the said committee shall unanimously find that said charges, or any of them, are sustained, and shall unanimously recommend that the license of the accused be revoked or his registration be annulled, the Regents may thereupon, in their discretion, revoke said license or annul said registration, or do both. If the Regents shall annul such registration they shall forthwith transmit to the clerk of the county or counties in which said accused is registered as a physician, a certificate under their seal certifying that such registration has been annulled, and said clerk shall, upon receipt of said certificate, file the same and forthwith mark said registration "Annulled." Any person who shall practice medicine after his registration has been marked "Annulled" shall be deemed to have practised medicine without registration. Where the license of any person has been revoked, or his registration has been annulled as herein provided, the Regents may, after the expiration of one year, entertain an application for a new license, in like manner as original applications for

licenses are entertained; and upon such new application they may, in their discretion, exempt the applicant from the necessity of undergoing any examination.

Acting under the provisions of this section, application was made to the State Board of Examiners, also by Mr. Vandiver acting for the County Society, for the revocation of the licenses issued to E. E. Conrad, F. G. Blinn, and Robert Ormsby, each of whom had theretofore been convicted of crimes in the County of New York. The State Board of Medical Examiners designated Dr. William Warren Potter, Dr. Lee H. Smith, of Buffalo, and Dr. Floyd Crandall, of New York, as a committee of three to hear and determine the application. The charges were presented on December 18, 1908. The committee took the charges under advisement, and after briefs had been submitted by the counsel for the Society and by the defendants, the committee recommended to the Board of Regents that the licenses of Doctors Conrad, Blinn and Ormsby be revoked. This recommendation was adopted and the licenses were revoked. Notice to this effect was served upon each of the individuals and filed with the Clerk of the County of New York and the clerks of the other counties of the State. Conrad and Blinn had been convicted of attempting to perform criminal abortions. Ormsby had been convicted of selling abortion drugs. These proceedings are the first of the kind ever brought in New York and will serve as a precedent hereafter in similar cases. W. R. T.

#### THE 1910 MEETING.

THE coming meeting of the Medical Society of the State of New York occurs at Albany, January 25th and 26th. Perhaps the most important question which will come before the House of Delegates is that which relates to the change in the time of the Annual Meeting. In another column will be found a communication from Mr. Lewis, the Counsel of the Society referring to this and other subjects.

The scientific program contains three valuable symposia, one on Bone and Joint Changes, one on the recent and important subject of Vaccines and a symposium on Appendicitis which has been arranged by the New York Surgical Society. Dr. C. H. Lavinder, of the Marine Hospital Service, will read a paper on Pellagra, illustrated by lantern slides which cannot fail to be instructive. As isolated cases of this disease are constantly appearing in different parts of the country, it is of importance that we should recognize it.

It is hoped that the meeting will be largely attended, both on account of the importance of the questions coming before the House of Delegates and because of the important subjects covered by the scientific program. A. T. B.

## Original Articles.

### THE TREATMENT OF ALCOHOL AND MORPHINE ADDICTIONS.\*

By ALEXANDER LAMBERT,  
NEW YORK.

*Mr. President and Gentlemen:*

WHEN a few weeks ago I published an article describing a treatment with which one can obliterate in a few days the craving for narcotics, I little expected the widespread interest that would be aroused. The inaccuracy of the lay press was to be expected, but this has created such false ideas of cures, that when you, Mr. President, asked me to read a paper to-night on the subject of this treatment, I gladly availed myself of the opportunity.

One risks a good deal when one endeavors to prevent the recurrence of narcotic indulgence, for heretofore the reputable profession has usually left this part of medical treatment to the nostrum or quack or the commercial charlatan. One is forced to submit without redress to the publication of interviews which were never given, and one must be prepared to accept the consequent misjudgment by his confreres.

The cause of alcoholism lie within and without a man. It is often impossible to disassociate a man from his environment, and because we cannot control a man's environment, though we may control him, we frequently fail in dealing with alcoholism.

The problems of alcoholism are sociologic, moral and medical, and many have been the failures because some of the sociologic problems have been dealt with medically, or the medical problems dealt with morally. I think it will not be uninteresting to this audience to consider the various types of patients that comes in to the alcoholic wards in a large hospital, such as Bellevue.

Twenty years ago the young men predominated more than they do to-day. The young working man and the horse car driver were frequent patients. As electricity came into commercial use the young men diminished in numbers, because a young man could no longer spree and retain his position, and the employers more and more have demanded sobriety through total abstinence among their workmen. Modern machinery has been a great source of temperance among the working classes. To-day the majority of patients are older men, the failures in life, and the derelicts of a great city.

A few years ago it interested me to study the social condition of a number of alcoholics, and among some ten thousand men it is very noticeable that the professions in which mental strain

with worry and excitement and irregular hours of sleep are predominant factors, show a larger number of alcoholics than those among whom such conditions are less pronounced. Journalists, actors and physicians are thus more prone to alcoholism than lawyers, engineers and other professional men. It seems that a craving for excitement against a monotonous existence, explains the large number of clerks, book-keepers, accountants and stenographers, who are admitted. Physical exertion near fires, producing physical exhaustion, as seen in stokers, firemen, blacksmiths, and iron and brass moulders, has long been recognized as a potent factor in producing the frequent admissions of men following these occupations, into the alcoholic wards.

Stable men, hostlers, hackmen, and teamsters of all kinds, men whose occupations vary from periods of hard work to idleness, with exposure to varying weather, form a large class in the cities who unfortunately acquire their habits of intemperance in the early and most productive years of life. More than half the large numbers belonging to these occupations who are addicted to alcohol are from five to fifteen years younger than the age at which the greatest number of those suffering from alcoholism are admitted to the hospital. Among the eight thousand women whose statistics I studied, domestic servants predominated over those working in shops and factories, and the term "housewife" covered the large number of prostitutes such as one would expect to find in the hospital service of any large city. How large this latter number is, it is impossible to say. These, in a broad sense, are factors which the hospital statistics bring out. The personal histories of the individuals, as is familiar to you all, show that the nagging worries, the disappointments and grinding wear and tear of life are the more personal causes in the environment of each individual. In the alcoholic ward at Bellevue there is a never ceasing flow of rounders who simply come in, are sobered up, go out again, and return. When I kept an accurate account of these patients, they averaged one-eighth of the total number. They wander between the police court, work house and the hospital, and they form the majority of delinquents that the police and the petty courts have to deal with. Medical treatment cannot suffice for these, and yet it is the only endeavor at present that one can make to help them. The State Charity Aid last winter brought forward a bill advocating the formation of a Board of Inebriety, with inebriate colonies to which the different drunkards and rounders could be sent under various conditions. This has been tried in Massachusetts and in Iowa and has produced excellent results, at the same time relieving the workhouse, hospitals and police courts of an enormous mass of recurring cases. Some such action as this must be taken to meet the ever increasing throng of

\* Read before the Society of Alumni of Bellevue Hospital, at New York, December 1, 1909.

chronic alcoholics which crowd the hospitals. This is not a medical problem, but sociological, and must be treated as such.

The causes of periodic drinking are different from those of the ordinary alcoholic. In a recent paper by Dr. Pearce Bailey, it is well pointed out how varied these causes are. Often it is a hidden unstable mental state, which may be an expression of a genuine psychosis, or it may be a recurrent explosion which in a few cases seems to resemble epilepsy, or it may be a recurrent sexual factor, in which the desire for alcohol is simply an expression of one factor in the general explosion. A very common form of periodic drinker is the man who persists in the delusion that he can drink moderately, and after a spree, he ceases to drink for some time; then begins gradually to nibble at it; this nibbling gradually increases until he goes on the regular protracted spree; but that form of the periodic drinker comes more into the question of the personal causes within a man, than those of his environment. In dealing with most alcoholics and in the majority of those given to any form of narcotics, we are dealing with the mentally crippled and mentally defective, and hopelessly deficient mass of humanity. After the alcohol or morphine has been removed, the residuum is often worthless, and too weak to cope successfully with the problems of existence.

In a small minority, however, we find strong individuals who through mistaken ideas of stimulation, or through the endeavor to tide over some crisis, have been led unwittingly under the spell of the narcotic craving, which demands ever increasing doses of a given narcotic, and from which they cannot physically break away; the majority of narcotic addicts, however, are those with weak and crippled nervous systems, either inherited or acquired through an unhealthy infancy and environment. The treatment for narcotic craving is vastly more, in a broad sense, than mere medical treatment, or more than drugs can possibly overcome in any individual case.

From a purely medical standpoint, the treatment of alcoholism can be fairly divided into the treatment of the acute attack, and the endeavor to bring the patients into such a condition that they can with a clear brain consider what their future must be. The mere cessation of drinking or the tapering off of the addict from acute or chronic alcoholism, is not sufficient to remove the desire for the narcotic which the enormous previous consumption has brought about. Many patients remain for weeks and months in some institution mentally watching the calendar and the clock for the time when they can get out and take a drink. This means sooner or later the return to their former habits, and a failure of that plan of treatment. The deprivation from a narcotic, does not mean an obliteration of the craving for it. This is true of any narcotic, whether of alcohol, opium, cocaine or tobacco.

The treatment of the acute exacerbation of alcoholism, or of delirium tremens, is too familiar to need description here. It is the step beyond this; the endeavor to straighten out an alcoholic and keep him straight, that I desire to bring to your attention.

After many years of endeavor to find something that would get a man on his feet with a clear brain, and with the craving for narcotics removed, I have finally come upon a mixture of drugs which produce the desired effect. As I have already published, this treatment was given to me by Mr. Charles B. Towns of this city, and consists of a mixture of 15% tincture of belladonna, 2 parts, and 1 part each of the fluid extract of xanthoxylum and the fluid extract of hyoscyamus. This is termed the specific. I have already fully described this treatment in an article published in the *Journal of the American Medical Association* of September 25th, under the title "The Obliteration of the Craving for Narcotics." Briefly, it is as follows:

From 6 to 8 drops of the specific are given every hour, day and night, until either the patient shows symptoms of belladonna excess, or with the cathartics about to be described, the patient has a certain characteristic stool. This specific is increased by two drops every six hours, until 14 to 16 drops are being taken; it is not increased above 16 drops. Usually an alcoholic can be given 4 C. C. pills at the same time that the specific is begun. After the specific has been given for 14 hours, a further dose of C. C. pills is given, either 2 or 4, depending upon the amount of action obtained through the use of the previous dose. If these have acted very abundantly, only two are now necessary. At the 20th hour of the specific, 2-4 more C. C. pills are given, and after these have acted, should the patient begin to show abundant green movements, an ounce of castor oil should be given, and a few hours later the characteristic thick green mucous putty like stool will appear. Usually the specific has to be continued, and at the 32nd hour 2-4 C. C. pills are again given, and a few hours later, the castor oil. The specific can then be discontinued.

Of course, in treating alcoholics, one finds in the majority of cases the necessity to stimulate them and to give them some hypnotic, but this can be done without interfering with the hourly administration of the specific. During the first 24 hours, with the older patients, or with one in the midst of his spree, there should be given whiskey in one drachm to two drachms doses, 4 or 5 times with milk. This should not be continued after the first 24 hours, and in young robust subjects, it is usually not necessary. The belladonna symptoms which would cause one to cut off the specific and wait until they have subsided before beginning again are, extreme dryness of the throat or the beginning of delirium as shown by an insistence or incisiveness of

speech with the insistence on one or two ideas, or belledonna rash or the general flushed red dryness or heat under the skin, of which they will complain. An alcoholic is more prone to react to belladonna than is the morphinist, but if they are sensitive to this drug, they will show it in the first six or eight hours of the treatment.

After patients have been through this treatment, the desire for alcohol has ceased, and for the next few days it is simply a question of feeding them, of giving them some tonic, and of seeing that they sleep at night. It is noticeable, however, that following this treatment most of the coal tar hypnotics do not act well. The best one is small doses of trional with codein, but the older drugs of chloral and of bromides act much better. A non-alcoholic tonic will soon set these patients on their feet physically, though whenever possible it is desirable that they should be placed where they can put themselves in as good physical condition as possible. We will consider later the question of prognosis as to the permanency of their abstinence.

There are many more morphinists who have unconsciously fallen under the spell of the habit through no fault of their own, than can be said of alcoholics. Often pain in sickness or the foolish prescription of some physician have been the means whereby the patient has unwittingly fallen into the habit of taking morphine; but they desire to get away from it, realizing their slavery, they grieve over it, they resent it, and they wish to be free from it. In this they differ from the alcoholic. The causes of morphinism in this country at least are more personal, more wrapped up in the individual nature, than present environment of a man. When it is possible to get them off their habit, they are therefore easier to deal with, although the pain and suffering which they previously endured made it infinitely more difficult to break them from indulgence in the drug even for a short time, than was true of the alcoholic, but it is just as necessary to take away the craving for morphine, as any other narcotic. To anyone who has ever tried to break off a patient by the old withdrawal methods when they were taking goodly amounts of the drug, and has struggled to keep them free from it after they have ceased taking it, the difference in the picture when undergoing the treatment by this new method, is most striking.

With this treatment most patients do not suffer more than a bearable amount of discomfort of hot flashes, slight pains, and the discomfort of their cathartics. When properly administered, this is the full extent of suffering with the majority of patients. Some do not go as far as this, a few suffer more. But when improperly administered, they can suffer as much by this method as by any other.

Briefly, in treating a morphinist, the same specific is given as I have spoken of for alcohol,

beginning with from 6 to 8 drops every hour, day and night, until the characteristic stool is obtained, or until the belladonna symptoms cause one temporarily to cease. Before beginning the specific, the patient should be kept comfortable with their accustomed dose of morphine. They should be given 4 or 5 C. C. pills, and when these have acted, the specific should be begun and given every hour, day and night, beginning with 6-8 drops, and every six hours increasing two drops, until 14 or 16 drops are being taken every hour. Do not increase above 16 drops. If the patient shows the toxic action of belladonna, already spoken of, the specific should be cut off and not given again until these symptoms subside; then one should begin again with the 6-8 drops. If a patient is very sensitive to belladonna, one may have to feel one's way with 3-4-5 drops of the specific.

With the beginning of the specific, the patient should have from 1-2 to 2-3 of the total dose of their morphine or opium in the form in which they have been taking it, and in the manner in which it has been taken, either by mouth or by hypodermic, either morphine or opium, laudanum or paregoric. This should be given in three divided doses at half-hour intervals. After 14 hours the patient should be given 4 C. C. pills with 5 grains of blue mass or some other form of vigorous cathartic, such as the vegetable cathartic pills of the Pharmacopeia with ginger and capsicum and a 25th of a drop of Croton oil to each pill. These I have called B. B. pills, for short. Either 4 or 5 C. C. pills with blue mass, or 4 or 5 B. B. pills, should be given at this 14th hour. After the 20th hour of the specific, the patient should have 4 or 5 B. B. pills and blue mass, and if these do not quickly act they should be followed by 4 or 5 C. C. pills, and then an ounce of Epsom salts or Hunyadi water every half hour for 4 or 5 doses. If in an hour or two these do not act, 4 or 5 more B. B. pills followed by the salts should be persisted in until the bowels do act. This sounds extraordinary, but the difficulty with which one obtains a cathartic action at this time in some morphine patients, is beyond belief. The ordinary withdrawal diarrhea as seen in the old treatment of morphine, does not occur here, but on the contrary at this time there is a most persistent constipation that is only overcome with the greatest difficulty. If at this time of the 20th hour the cathartics do not act, the withdrawal symptoms of sneezing, nervousness and pain come on in full force, and the patient begins to suffer intensely. If the cathartics do act well, a second dose of morphine or opium should be given, of about 1-3 or 1-6 of what was given as the initial dose at the beginning of the treatment. Twelve hours after this second dose of morphine or opium, the patient should again have 4 B. B. pills, or 4 C. C. pills with 5 grains of blue mass, and following this the stools will begin to be green. Often at this time they have

large liquid green stools, but these are not the characteristic green stool spoken of. After the liquid green stools have occurred, following the 32d hour cathartic, an ounce of castor oil disguised in coffee or orange juice, but not in whiskey, should be given, and the thick green stool is obtained in a short time.

When the patients have had this characteristic stool, some of them will feel suddenly relaxed and comfortable, where previous to this they had been nervous and uncomfortable. If just before the castor oil acts they are very uncomfortable, one should not hesitate to give them 3 to 5 grains of codeinphosphate, which will make them comfortable and not tie up the secretions as morphine does.

After the characteristic stool has been obtained, and the specific has been stopped, some patients are still nervous and upset. Sometimes a high saline enema will remove all this, and the patient will become relaxed and go to sleep. Others will wake up after the codein and be comfortable and with no further desire for the morphine. In fact, their desire for morphine has disappeared.

At the 30th hour of treating a morphine patient, and if in a week condition at an earlier hour, one must begin stimulating with strychnine, a 60th to a 30th of a grain.

In treating patients suffering from cocaineism combined with morphineism, one must stimulate with strychnine early, and it is not necessary to give any initial dose of cocaine, but with these patients one must never fail to remember that cocaine has been used as a strong antidote against the morphine, and the initial dose of morphine must be smaller than when taken alone, and should never exceed half the amount taken in 24 hours. When treating a patient who is addicted to cocaine alone, one should give the heart stimulants early, and it is not necessary to give any of the cocaine to begin with. The cocaine patient sleeps heavily through the first 24 hours of his treatment, and is aroused with difficulty to take his specific. These patients, after they have had the desire for morphine or cocaine removed, rapidly improved. Their appetite improves with equal rapidity, and they gain flesh fast and build up very quickly.

Now, considering all morphinists and cocainists and alcoholics, after one has obliterated the craving for their narcotic, what is the prognosis in regard to the patient returning to his addiction? I have no absolute figures as yet, because it is impossible to tell at this time what proportion of the number treated have relapsed. Most morphinists desire to stop their addiction, and earnestly and honestly wish to be free from it. If relieved of the craving for their narcotic, and if free from this desire for 48 hours, they can readily stay free without effort for as many years. It is only when the cause which first brought them to their addiction again becomes active, whether it is pain, insomnia, sorrow, worry

or discouragement, that they are prone to relapse. The majority of morphinists become addicted to its use unintentionally, and in my experience, after watching the effects of this treatment for five years, the vast majority do not relapse. From the cases which I have seen, I believe that 85 per cent. have stayed off their drug. This number is only a mental estimate of my own. I have not figures to prove it. It is, however, my present belief.

With cocainists, the causes which led to the addiction are more seductive, and more apt to become re-operative, and therefore the patient is more prone to relapse. If within a year after one has removed the craving for this drug, the patient becomes mentally or physically exhausted, he is exceedingly apt to return to his addiction, but if after that time he is kept in good physical condition, and not permitted to become over exhausted, the majority of these patients do not relapse.

With alcoholics the question is different, and among these it is especially necessary that there should be an honest, deep-rooted desire on the part of the patient to be freed from the habit, and a full frank acknowledgement that he cannot ever indulge in a single drink of alcohol in any form without danger of a relapse. If a patient realizes this fully, and acknowledges it to himself, that he is not as strong as he thinks other men are, and that he is one of the men who cannot take this narcotic in moderation, and is one of the sensitive human beings to whom a single drink is the sure beginning of a prolonged debauch, you have gone a long way in helping that man to a permanency of abstinence.

Most alcoholics do not desire to stop drinking. Most of them are unwilling to acknowledge that they cannot drink even in moderation. They possess an abnormal self-conceit, through density of which it is almost impossible to drive in the ideas necessary to make them realize the danger of a single indulgence.

Each form of periodic drinking has to be treated by itself, and the causation of periodicity unravelled and worked out. Even with these patients, I have seen this treatment straighten them out, and bring them to a realization that they could not drink at all.

You have noticed that in this paper up to this time, I have not used the word "cure." This has been a deliberate omission. To cure a man of the alcohol habit, or of morphine or cocaine by means of drugs, would be to give them something that would in some way prevent them from ever indulging in their narcotic again. This would be to guarantee the future acts and environment of another individual, and no wise man would ever attempt to do such a thing. We cannot rebuild a weak character by means of drugs. We can by long training and moral influences accomplish this result, and it is for this reason that in the past, where it is possible, it has been a very noticeable fact, that those patients who

could be religiously influenced are those in whom we have found the strongest incentives to refrain from narcotic addiction. We have no drugs to follow the daily life and daily walk of an individual, and act as a chaperone to keep him from narcotic indulgence. This treatment does not offer such a safeguard, and when the word "cure" has been misquoted in connection with it, I, for one, have not been responsible for it.

If we can obliterate the desire of a man to indulge in his narcotic, we certainly have put him in a position where he can take a mental account of stock, and consider whether it is worth while to cease his indulgence, or whether he desires to go on again. He can then, with a clear mind, consider what portion of his environment is dangerous to him, and thus see clearly what it is he has to avoid in future. He can see clearly where he has been in error in his habits of life, or as I have said, in his environment, and can re-construct his habits of living, and thus make what started as the obliteration of his craving for narcotics, into a permanent abstinence from his indulgence. Medically, it does not seem that it is possible to do more than this. By medically, I mean treatment with drugs. Morally, if one possesses the confidence of one's patients, and can influence them and make a deep impression on their minds when they are in the full reaction following the cessation of their narcotic poisoning, one may make a lasting impression which will be of inestimable value to the patient. In this way one may help to bring about a cure.

All these narcotic addicts, after their treatment has obliterated their craving, are still not robust people in the full vigor of their faculties. They require physical care, and they require mental help. It is hard for many of them to believe that in so short a time as from 3 to 5 days they can be absolutely free from all desire to indulge again, and many of them require some days to regain their self-confidence, but this soon returns.

This treatment, gentlemen, has been offered to the profession with the earnest desire that others would try it and prove its value. In my hands it has obliterated the craving for narcotics, but that, as many of you realize, is but the beginning of the regeneration and cure of the patient. It is my belief that it is a step in advance of any form of treatment which has yet come within my knowledge. It is, however, necessary to follow out the many details which have been laid down in my first article, and mentioned briefly in this paper, in order to make this treatment a success.

If it is not properly carried out it does not attain its object, and the patient is left in a disappointed, miserable frame of mind. The craving is not obliterated, and it is a woeful failure. If carried out accurately, I feel confident that you will succeed as well as I have, and will have the satisfaction of breaking up many a narcotic addiction with which formerly you had struggled only to be forced to acknowledge to yourself the bitterness of defeat.

## THE FRESH AIR TREATMENT OF SURGICAL TUBERCULOSIS.\*

By **BRAINERD H. WHITBECK, M.D.**  
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**T**HE decided benefit derived from the continued life in the fresh air in the treatment of Pulmonary Tuberculosis has been realized in this country for many years, and the establishment of properly equipped sanatoria for those suffering from lesions of the lungs has been wide spread. It is only in the last few years, however, that surgeons of America have commenced to put into practice this same treatment for the general improvement of the constitutional condition of those suffering from that form of tuberculosis attacking the joints, bones and glands.

The mechanical operative methods through the many years of surgery have advanced steadily, and have reached a high standard; but there is no disease to which man is prone in which the constitutional and local treatment must work so truly hand in hand towards a successful issue as in tuberculosis of a surgical nature. Until recently the constitutional treatment has consisted of the more or less active routine use of increasing doses of cod liver oil, taxing a liver and digestive apparatus which has been already weakened by disease. Not until the last few years has the favorable constitutional effect upon these cases of a constant open air life away from the dust and vitiated air of the city been well appreciated in this country.

In European countries the surgeons had realized this fact long since, for as far back as 1861 a sanitarium had been established at Berck in France for the treatment of surgical tuberculosis, and since that time upwards of 100 such sanatoria have been established in France, Germany, Switzerland, England, Austria, Belgium, Holland and Italy. The greater number of these sanatoria were at the seashore, but there have also been established several inland. These hospitals have steadily grown as at Berck, the original one which was started with 100 beds has now reached the large hospital of 600 beds. The French from all their hospital reports combined claim from 87% to 93¾ of satisfactory results in the cases treated at their fresh air sanatoria. The English likewise have reached the conclusion that cases of surgical tuberculosis should not be treated in the city hospitals, and that country air was absolutely essential to the successful combating of the disease. Quoting from the *British Medical Journal* of November 19, 1904, "During the past two years we have strenuously advocated the necessity of grappling earnestly with the problems presented to us in the treatment of children afflicted with that form of tuberculosis which comes under the notice of the surgeon. We have shown how incomplete are the results obtained in the children's hospitals of cities and

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large towns, how the disease recurs and the energies of both the administrative and surgical staffs of the hospitals are taxed to cope with the disease, and that disappointment too frequently attends all efforts. The disease is essentially of a chronic nature, and requires time and patience, and above all, a prolonged period of residence in fresh air." In commenting on the report of the Aberfoyle Childrens' Home near Glasgow, this same article says, "the home was started at the desire of some medical men in Glasgow to meet the needs especially of cases of tuberculosis of the bones, of which there are so many in the invalid schools. Many of these children, the report states, suffer from tuberculosis of the bones and joints, and have been under hospital treatment, but their ailments are of such a nature that permanent cure cannot be effected under the conditions of a confined city life. Members of the medical profession are, however, of the opinion that in many cases these ailments might have a reasonable chance of disappearing, and the children live to become useful and happy members of the community, if only they could be sent to the country for a prolonged period of treatment. In diseases of the above-named description the chief and essential elements of cure are time, good food and fresh air."

In France, 60,000 cases were treated at their fresh air sanatoria from 1887 to 1905 with, as stated above, from 87% upwards of satisfactory results, nearly 60% of actual cures, and the rest decidedly improved. The same happy reports have come from other European countries, and the conclusion of many observers have been that 75% of all the cases cured were permanently recovered.

After a careful investigation of the conditions abroad and with a thorough appreciation of the necessity of establishing a fresh air hospital for surgical tuberculosis near New York City, the A. I. C. P., in June, 1904, decided to try the experiment at Coney Island where they already had a summer home for women and children. Having no available quarters in the buildings, tents were erected on the beach. The tents were so arranged that the children could spend the entire 24 hours in the fresh air, rain or shine, and each day they had their sea bath. 63 cases were treated during the summer up to October, comprising those with diseases of the spine, hip, knee or other joints and also several glandular cases. 28 of the cases had on admission discharging sinuses.

The improvement of these children who had come from the cramped tenements or the unsuitable surroundings of the various city hospitals was decided from the first, and by October, when the summer home was to close, the Association was convinced that a permanent hospital should be established. One of the buildings, smaller than the rest, and apart, was selected and 35 of the most favorable cases were chosen

to remain. A few of these cases had presented sinuses on admission and had shown marked improvement in the healing process. The age limits were 2-14.

The Superintendent of the Home, took charge of the new hospital and a head nurse, and five other nurses were established in the institution.

A medical advisory board, made up of prominent men who were especially interested in this work and felt strongly for its success, was appointed. At first there was a resident physician but it was soon deemed unnecessary and a physician and a surgeon were appointed who were to visit the hospital once or twice a week.

At present the staff consists of 2 orthopedic surgeons, two physicians, a dentist and a consulting oculist and aurist. Thus, every need of the children is looked after.

The patients when coming to the hospital in June had presented an appearance pale and thin, poor appetites, and no desire to exert themselves. Quickly and steadily the appetites improved, the color came to their cheeks and the weights denoted a decided gain from the first. With this improvement during the summer months there was doubt as to whether the children could stand a hard winter and continue to improve. It was realized that the experiment would amount to nought if the fresh air, no matter how cold, were not rigidly enforced. The fears were soon dispelled as the children took kindly and willingly to the steadily advancing winter and the improvement commenced in the summer continued as the winter went on.

Having started out to prove that the two great therapeutic agents, fresh air and good food, were so essential to these cases of tuberculosis, it was determined that the very best should be provided, and this has always been the aim of those in charge. The wards have been so arranged on either side of a hall that a free circulation of air can take place at all times. The windows are never closed, night or day, in summer or winter. The word draught is not known in the vocabulary of the Sea Breeze Hospital. The children have become so immune to cold that they never complain no matter how low the temperature. The writer visited the Hospital one morning last winter, a decidedly cold day, and the Superintendent remarked that the thermometer had registered 10° above zero in the girls' ward at 6.30 that morning; and yet those children love it. One, who has never visited the hospital, can hardly realize the contrasting pictures presented by any one of the patients from the day of admission until he or she becomes one of the characteristic Sea Breeze children. That pale, drawn and pain marked face, the thin and weak body which is so characteristic of the tuberculous patient of the city hospitals steadily gives way to the bright, cheerful, happy expression of the healthy child—pink cheeks and ruddy complexion. With the steady increase in weight the body rounds

out, and the languid attitude gives way to that of activity. It would probably be impossible for one to find 45 children under one roof, or in one community, who showed such excellent nourishment and such thorough childish activity as the children of Sea Breeze, suffering from that dreaded malady, tuberculosis. By kindness on the part of all who come in contact with them these children change from the nervous, frightened waifs of the tenements to cheerful stolid trusting patients, and far from a fear of doctors and nurses they greet their arrival with shouts of welcome and rush up to shake their hands.

The food provided has always been of the best. Good plain cooking has been insisted upon and under the careful supervision of the Superintendent the children have fared well. Milk and eggs have at all times formed an important ingredient in the diet list. The hearty meal of the day comes at noon and in addition to the three regular meals of the day, luncheons of crackers and milk are served at 10 and at 3. For each one of these 5 meals the children appear with ravenous appetites. Those children who are up and about have their meals served in the dining room, the bed cases on the porches in the middle of the day, in the wards for breakfast and supper. No child is in the house except at meal time and during the school periods and as the windows are always open, they are still in the fresh air.

The hospital was started by subscriptions obtained by the A. I. C. P. and all the beds were free. It was not known exactly what it would cost to run the hospital, but by careful management and close observation of the required needs, it was determined after a short time that \$8 per head a week would cover the expenses, including salaries of all the nurses and servants. When the original subscriptions were exhausted, a plan of operation was settled upon, which has existed up to the present time, namely, that those cases of the original number still in the hospital should remain as free patients, and that thereafter the parents of the child admitted should pay what they were able each week,—one, two, three, or more, dollars, and that the Association would pay the rest through further subscriptions. Some parents have been able to pay the entire \$8 per week. This arrangement has proved very satisfactory, because the patients have not been pauperized and the beds have usually been kept filled, whereas the Association might not have had sufficient funds at all times to accomplish this end, if put entirely on their own resources.

In the early months of the existence of the hospital those in charge were desirous of putting the institution to a severe test to determine the full powers of the fresh air treatment. Any case was admitted, provided there was a vacancy, irrespective of the stage of the disease and the condition of the patient. Consequently the hospital held under its roof a few children whose

disease was already in a very advanced state, in which amyloid degeneration of the viscera had already taken place. For a short time after admission, some show of color came to their cheeks, they developed good appetites, and the outward signs seemed to point towards improvement. This improvement was short-lived, however, and despite every care, these little patients soon turned toward the downward path and went on toward the final issue. In no case with existing amyloid degeneration on admission was there an exception to the rule, and these cases must still as ever be considered hopeless. Having tried out a number of them, we are convinced that even the most favorable fresh air treatment is of no avail and we no longer admit them, feeling as we do that they only occupy beds which could be well utilized for the care of those patients whose conditions hold out a hope of cure. There are still such advanced cases sent for admission with the word that Sea Breeze Hospital offers the only chance, but we are forced to refuse them. Another class of cases which we bar is that of pulmonary involvement complicating the joint condition, for experience with these cases has shown that their coughs are exaggerated by the life at the seashore. Moreover if any cases already under treatment at the hospital develop pulmonary complications, a rare occurrence, they are also discharged for the same reasons. This did occur in the cases which had amyloid degeneration as a part of a general tuberculosis, but has never as yet occurred in the early cases.

The length of stay of our cases is uncertain. We never discharge a patient until all signs of active disease have been absent for a sufficient time to make us reasonably sure that the cure is permanent, and this rule has been well born out, as we demonstrated in the report published in the *Medical Record* of March 7, 1908.

The routine of a day at the hospital is as follows: At 6 o'clock in the morning, in winter, the windows are closed to warm the wards for dressing; at 6.30 the children arise and breakfast at 7 o'clock of a cereal, milk, eggs, bread and butter and fruit; school from 9 until 11 o'clock with a short intermission at 10, when crackers and milk are served. Play from 11 to 12 o'clock. Dinner at 12, with roast beef or lamb, or chicken or fish, and vegetables, bread and butter and milk, c. cream, milk pudding or ice cream or fruit. After dinner there is a continuous period of play until supper, except for milk and crackers at three; at five, supper, of toast, butter and milk, fruit and eggs. The younger children, under seven, go to bed immediately after supper; the older ones at 7 o'clock.

The gratifying success of the fresh air treatment at the Sea Breeze Hospital in its constitutional effects on our patients has not led us to neglect that other very important factor in their care, namely, the treatment directed towards the seat of the disease. It has been always our de-

sire to keep in touch with all the best local measures which seem to us to offer a means of bringing about an improvement in the condition of our patients.

In the treatment of the joint conditions we have always used plaster of paris where possible in preference to braces, because, in the first place, with the careful and proper application of the plaster of paris bandages we feel that we have provided the most effective means of immobilization and support to the affected joints. And in the second place, in a hospital where the funds are naturally limited as at Sea Breeze Hospital, the great expense incurred by the extensive use of braces would be a serious consideration.

Cases of tuberculosis of the elbow are immobilized flexed beyond a rt. a. by a circular plaster paris bandage. Those of the wrist in the extended position. For the ankle joint, plaster of paris from below the knee to the toes with the foot at right angles and a Thomas splint. In cases of knee joint disease plaster of paris from the groin to the ankle or with a Thomas knee brace. In hip joint disease the Lorenz short plaster paris spica extending from just below the umbilicus to the knee joint, with the thigh in abduction and full extension. The child is allowed to walk upon the foot with the hip thus immobilized, and it is a source of great satisfaction to see these cases running and jumping about with this means of treatment and go on steadily to a permanent cure, suffering no pain or discomfort from the constant use of the affected limb in weight bearing.

Up to one year ago the routine of treatment of tuberculosis of the vertebrae was by means of the ordinary plaster paris jacket, or the Bradford frame, depending upon the condition and age of the patient. For cases over 4 or 5 years of age with the disease in the lumbar or dorsal regions the jacket, and in the upper dorsal or cervical region, the jury mast incorporated into the jacket. For cases under the above age, the Bradford jacket was used. If during the treatment with the jacket, muscular weakness or paraplegia developed, those cases were at once placed on the Bradford frame and kept there until the condition improved sufficiently to warrant their return to the erect posture when a jacket was reapplied. It seemed advisable also to keep on the frames those cases which developed Psoas abscesses of a large size in the hope that the abscesses might diminish without rupture.

These forms of treatment were in many instances more or less unsatisfactory and a year ago the Calot jacket was introduced into the treatment of these cases.

The Calot jacket in our opinion fills the required needs in the support of the spine in cases of Pott's disease better than any form of treatment so far put forward, for it offers the best means of immobilization of the spine, no matter

where the seat of disease may be, and also allows us to place upon their feet many cases which formerly were compelled to remain on their backs for reasons before mentioned.

The two forms of Calot jacket, the military and the grand, we have used in the particular cases to which they are suited. The military in all cases of disease below the upper dorsal region and the grand jacket for those above, namely, the upper dorsal and the cervical regions. The results from this form of treatment have been most gratifying.

The following will illustrate the beneficial results:

Florence W., age 10, was admitted to Sea Breeze January 25, 1906, suffering from the disease of the dorso-lumbar region. For some time before admission child was suffering from paraplegia and incontinence of urine with increasing severity. Child was wearing ordinary plaster paris jacket on admission. She was placed on a Bradford frame, but although the general condition slowly improved the incontinence and paraplegia continued and was a constant source of trouble. The skin was in a bad condition most of the time.

On December 1, 1907, a Calot grand jacket was applied and the kyphosis pushed forward by packing.

On January 12, 1908, the child was walking about, incontinence markedly improved.

May 31, 1908, child walking fairly well, though thighs still flexed—knee jerks slightly diminished; incontinence very slight.

Jackets were reapplied at intervals until November 8th, when the child was given ether, and legs straightened and put up in a double spica extending from axillæ to toes.

Child kept in bed. Incontinence which had nearly stopped returned. Two months ago spica removed and grand Calot jacket applied and child is now walking again and incontinence diminished decidedly.

This case was very intractable and gave no promise of cure until the use of the Calot jacket was instituted.

Abscesses developing during the course of tuberculosis of the bones and joints and the sinuses which so frequently persist after the opening spontaneous or otherwise of these abscesses have been of great interest to us at the Sea Breeze Hospital.

We have always recognized that as a rule a cold abscess is better left unopened unless so large as to interfere in some way with the treatment or the comfort of the patient. Recently, however, we have introduced, in the treatment of the abscesses, that method employed by Prof. Calot, of aspiration of the contents of the abscess under strict aseptic precautions and injection into the abscess cavity of a solution of 7/8 cc of the following:

Olive Oil .....	50.
Ether .....	50.
Creosot. ....	2.
Iodoform .....	2.

The results of this treatment have been interesting and happy, as shown by the following cases:

Agnes C., aged 6, was admitted to Sea Breeze Hospital, April, 1907, suffering from tuberculous disease of the 1st L. vertebra. She had been under our care at the Roose. Disp. since April, 1906, treated with an ordinary jacket. She presented a large right psoas abscess at the time of her coming to R. H. and a moderate sized left abscess. A short time before her admission to Sea Breeze she developed signs of paraplegia; the knee jerks became exaggerated, gait weak and unsteady and she was emaciated, nervous and fretful. She was placed on a Bradford frame and from that time on the condition improved steadily. The abscesses, however, still remained and showed no tendency to diminish, and in fact the left one had decidedly increased in size.

On September 10, 1908, over two years after the abscesses were first recognized, they were aspirated under cocaine just below int. to ant. Sup. spine and 100 cc thick pus was removed from the right abscess and 50 cc removed from left abscess and 8 cc of Calot fluid injected into each.

September 19, 1908, 65 cc of pus withdrawn from the right abscess and 8 cc of fluid injected.

October 18, 1908, 175 cc. of pus withdrawn from right abscess and 75 cc of pus withdrawn from the left and 7 cc of fluid injected into each.

November 8, 1908, 275 cc of pus removed from right abscess and 7 cc of fluid injected.

November 25, 1908, left abscess aspirated and small amount of dark brown fluid removed.

November 29, 1908, practically nothing could be felt except a slight thickening in either iliac fossa, and therefore a Calot jacket, military form, was applied.

December 20, 1908. Child walking quite well. Left abscess barely palpable in this region; no signs of paraplegia. At present child fat and happy and has grown a good deal in height since admission.

The change in 18 months has been remarkable.

Harry S., aged 5, admitted April 1, 1908, suffering with tuberculosis of spine in the mid-dorsal region, wearing poorly fitted jacket.

Shortly after admission he developed an abscess in the right gluteal region; placed on Bradford frame. In May the abscess had increased considerably in size and its surface became red. Inflammation subsided under wet dressings.

In July abscess near rupture; was aspirated and 50 cc of pus removed and 8 cc of Calot fluid injected.

July 18, 1908, abscess ruptured spontaneously

and discharged about 2 1/2 oz. of greenish fluid through very small hole and treated with rigorous asepsis, then closed spontaneously.

July 20, 1908, opened again and discharged 3 cc of yellowish fluid; then was aspirated and 30 cc of pus removed and 7 cc of fluid injected.

July 27, 1908, abscess still discharging intermittently through small hole. During this time removed from frame and kept as much as possible on his face in bed.

August 17, 1908. For 12 days abscess has not discharged; it is closed and flat, apparently empty. General condition of child markedly improved since admission.

November 17, 1908, child has been on Bradford frame since abscess healed, military Calot jacket applied.

The abscess has never reappeared and the boy is now wearing the jacket with comfort and is in excellent condition.

The importance of these cases can be realized if the fact is borne in mind that an infected abscess of the spine almost invariably is fatal.

We no longer hesitate to attack a presenting abscess and thereby shorten the duration of the treatment of the disease quite materially.

No condition in the course of a tuberculous process is more to be dreaded, if we set aside amyloid degeneration and pulmonary complications, than the occurrence of a tuberculous sinus. We all know full well the months and even years of constant drainage that usually results and the tedious dressings which must be applied indefinitely. It is these particular cases, more than any others, which have put the Sea Breeze Hospital, as a representative of the fresh air treatment, to a severe test and it has not been found wanting.

There are several elements which have had to do with successful treatment of these cases. We have not resorted to operative methods except where the drainage of abscesses proved insufficient and there resulted a damming back of the discharge.

We regard the curettement of the sinuses and diseased bony area as useless. The focus in the walls of the sinuses is not superficial, but extends deep into the adjacent tissues, where it cannot be reached by a curette.

The marked improvement in the constitutional condition of our cases has played a large part in the healing of these sinuses. As a rule the improvement in the condition of the sinuses is not noted until the patients have already reached a decidedly good physical state, but from that time on as a rule the diminishing of the discharge and the closing of the sinuses progress steadily. Thus we have put before us the great cause of the persistency of the sinuses in the city cases, for this persistence represents a continuance of the diseased focus, and as long as the patients continue to live that city life, with insufficient pure air and bad food; with the fondling

and nervous life of the home, so long will the sinuses persist. Thus the great need of the outdoor life and good food in the treatment of these cases.

The beneficial effect upon the sinuses of their direct contact with the salt water was learned the first summer of the existence of the hospital. Considering that the daily baths would have a tonic effect upon the patients all those not wearing plaster paris were allowed to go into the ocean. It was then noticed that those children with discharging sinuses showed a marked improvement and that the sinuses steadily and rapidly healed.

The following case will illustrate:

Marvino A., aged 13 was admitted to the hospital among the first patients in June 1904. In 1898, in Italy he first showed symptoms of tuberculosis of the left ankle joint. Soon after a sinus formed on either side of the joint and several operations were performed to no avail, in Italy and in New York. When admitted to the Sea Breeze Hospital he presented two sinuses discharging freely, one on either side of the joint. He was allowed to take his daily bath and like the others come out each day with the dressings filled with sand. Far from doing harm this exposure was a decided benefit and the discharge diminished so that by October it had ceased. Two months later the sinuses were entirely closed and the ankle joint was ankylosed at an angle of 95 degrees and the boy walked and ran with only a slightly perceptible lameness.

This is only one of a number of similar cases of sinuses connected with the hip, knee, wrist, elbow, acting in the same favorable way.

It is interesting that three cases which started the sea bathing for their sinuses last summer have continued to take their baths during the fall, and on a vists of the writer just before Christmas, they had only then discontinued their full baths, the water being a little too cold. They still wade in to the hips each day, however.

Since the presentation, last October, in Washington, by Dr. Emil Beck of Chicago, of his paper on the treatment of tuberculous sinuses by the injection of Bismuth subnitrate, we have recently inaugurated the same treatment in certain of our cases at Sea Breeze.

The injections have been made twice a week and the sinuses have been filled at each sitting by means of a cone-shaped syringe.

The formula which Dr. Beck used at first was:

Bismuth subnit. ....	6
Vaseline .....	12
White Wax .....	1
Paraffin .....	1

This he called formula No. 2.

Recently he wrote the writer that he had been using with more satisfactory results a formula which he called No. 1, composed of Bismuth subnit 1/3 and vaseline 2/3.

We began with No. 2 and the discharge of pus diminished rapidly and the sinuses were healed permanently in two cases after three and four injections respectively. Three other cases showed marked improvement after several injections but suddenly all three developed nausea and vomiting and fever and were quite sick for four days. At this time the pus also had decidedly diminished in amount. We stopped the injections and after several days the discharge became quite free and with it considerable of the Bismuth mixture before injected. We waited some time and then commenced injections recently with formula No. 1. The discharge in the cases is now rapidly diminishing with no tendency to blocking up. Two cases of advanced amyloid degeneration, complicating Pott's disease and hip disease respectively showed decided diminution in the discharge, but the disease progressed to a fatal termination in one and the other was so ill that she was discharged as incurable. One other case showed an apparent poisoning from the Bismuth after the first injection and we have discontinued the treatment.

The results have been promising and warrant our continuation of the treatment in appropriate cases. We are keeping notes and shall at a future date report our results.

There is another class of cases which has shown the good effect of a life in the open air, namely, that of tuberculous adenitis. It is a matter of routine practice with us to remove the adenoids and enlarged tonsils, when existing and if the diseased glands are considerably enlarged and softened, to send the patient to one of the city hospitals for removal of these glands, as we feel that we thus avoid the possible formation of sinuses as the result of the broken down condition which has already taken place. These patients then return and remain until cured. The cases of moderate severity undergo the usual constitutional upbuilding by means of the fresh air and good food and improvement has taken place from the first, the glands have steadily diminished in size until the patients have been discharged cured. In those cases presenting discharging sinuses as the result of broken down glands, there has been no decided improvement until the adenoids and tonsils are removed. when the discharge rapidly diminishes and in a few months the sinuses are healed.

In examining cases sent to us for admission to the Hospital we must determine whether each case is a suitable one. Certain patients present who give a history of a long and tedious course, numerous operations performed, and a very unsatisfactory response to treatment. They present discharging sinuses which have remained about the same for possibly several years. This of course is the history of a large number of cases which are unquestionably tuberculous. But a certain number of these cases present a somewhat different picture. The sinuses, although

perhaps near a joint, appear to lead us away from the joint towards the shaft of the bone. The joints themselves are not much limited in motion. Moreover the sinuses are of a punched-out appearance and are surrounded by a copper colored areola. Usually multiple joints are apparently affected and the sinuses have formed in rapid succession. The teeth of the patients are often bad and frequently notched. They present a more or less general moderate adenitis. In these cases we reserve our decision until we have put them through a course of mixed treatment, KI in increasing doses and ung. Hydrarg. to the sinuses for at least three or four weeks, for we are inclined to believe that a mistaken diagnosis has been made, and whereas they have been treated for a period of years for tuberculosis they are in reality cases of hereditary syphilis.

Our observations in a goodly number of these cases have met with success and the patients have been restored to health in a comparatively short space of time under treatment at the city dispensary. We do not send these patients back whence they came, but keep them under our own care until cured.

A few such cases were found already in the hospital when the present staff took up its work two years ago, and we also admitted a few before we came to observe them carefully and these patients were apparently cured at the hospital before discharge with a proper diagnosis. In the first cases, however, their condition recurred because we lost track of them and their medication was discontinued, so that now we insist on the patients coming to us regularly for at least 18 months after discharge in order that we may continue the appropriate treatment. Latterly there have been no recurrences.

The writer lays great stress upon these cases, as it appears that hereditary syphilis is not carefully considered in a number of instances and the mistakes are thus too common. The patients are thereby put unnecessarily to years of suffering and ultimate deformity.

Medicines do not occupy a prominent place in our methods of treatment. We have no recourse to such tonics as cod liver oil and the like. Simple laxatives are sometimes indicated.

Several cases have improved under the use of the syrup of the iodide of iron when indicated, and the writer feels that it is a very valuable tonic in cases which seem to need a lifting up to that point where the body is able to assimilate the food given. It does not upset the stomach and is usually not constipating.

The results obtained of the Sea Breeze Hospital as a permanent institution, open winter and summer, have shown the necessity of long continued life in a hospital of that nature. Several summer hospitals and homes have been established along the eastern sea coast and in the country, such as the country branch of the N. Y. Orthopedic Hospital at White Plains, the

Daisy Fields Home and Hospital for Crippled Children, at Englewood, N. J., the Southampton Home on Long Island, the Hospital at New Dorp, Staten Island, and others near New York, one at Providence, R. I. and those at Marblehead and Wellesley, Mass., most of which are open from June to October, and the patients admitted to these institutions have shown gratifying improvement. However, this improvement has been in the majority of instances but temporary, because, naturally, a cure has not been effected in the four short months of their sojourn, and the return to the poor surroundings of the cities from whence they came, has resulted in a speedy loss of the ground gained. This is the experience of the various surgeons who have charge of these institutions and the universal hope exists that in the future greater financial support may make it possible to establish their hospitals on a permanent basis.

The Sea Breeze Hospital was established at Coney Island because it was urged abroad that the sea shore was the best place for such a sanatorium, and that it was desired to try the experiment in America.

There are certain elements which suggest themselves as reasons why the seashore may be preferable to any inland location for a hospital. The balmy air and more even temperature without the sudden changes which are apt to take place in our inland States, the sea bathing and the observation that children are happier on the sand and near the water than in the fields. We also feel that there may be something about the air off the ocean which is more beneficial than the inland atmosphere. This has been claimed by writers abroad.

However, it is the writer's desire at this time to emphasize certain salient facts which above all else present themselves in the successful treatment of surgical tuberculosis.

1. That the patients should as far as possible live in the fresh air all of the twenty-four hours, day and night, winter and summer. That they should never be indoors except at necessary periods and that the windows of the house should always be open.

2. That this is best brought about by the establishment of sanatoria in the country or at the seashore, away from the city, thereby removing the patient from the worries of home life where they are too frequently made to feel their crippled condition, and from the dirt and vitiated air of the city.

3. That they should be supplied with good simple food in abundance.

4. That the surroundings of the sanatoria should be made as attractive as possible, including good education, kind treatment and attention.

5. That, with the constitutional, the best possible orthopedic, treatment should be offered, bringing into use every means whereby the patients

may be made most comfortable and the best functional results obtained.

6. That the patients should be given the benefit of the fresh air treatment at the earliest possible moment in their diseases.

Therefore it is the desire of the writer to urge the establishment of sanatoria throughout this country, inland and by the seashore, for the relief and cure of the thousands of sufferers from the various forms of surgical tuberculosis. It is an economic as well as a humane problem, fully as much and more than in pulmonary tuberculosis for upon the proper and successful treatment of these cases depends the relative usefulness in after life of these more or less crippled individuals. The writer firmly believes that the establishment of numerous institutions at the seashore, along the shores of our Great Lakes, and through the country districts, will reap a harvest of success, and hopes that the time is not far distant when the sanatoria for cases for surgical tuberculosis will equal, or outnumber those of pulmonary tuberculosis.

SEA BREEZE HOSPITAL.

June, 1904, to January 1, 1909.

Discharged Cases.

CASES	Number	Cured	Im- proved	Unim- proved	Died in Hosp.
Spine—Early .....	5	1	2	2	0
Advanced .....	15	5	4	5	1
Hip—Early .....	0	0	0	0	0
Advanced .....	14	11	2	8	3
Knee—Early .....	3	3	0	0	0
Advanced .....	6	4	1	1	0
Other Joint—Early .....	1	1	0	0	0
Advanced .....	12	8	2	2	0
Glands—Early .....	9	4	5	0	0
Advanced .....	27	13	5	5	4
Syphilis—Early .....	1	1	0	0	0
Advanced .....	4	3	1	0	0
<b>Total .....</b>	<b>107</b>	<b>54</b>	<b>26</b>	<b>23</b>	<b>4</b>

Of the 23 unimproved cases 16 have, since discharge, died from various complications, among which are the following:

Amyloid degeneration .....	6
Hypostatic pneumonia .....	4
Multiple sarcoma .....	1
Meningitis .....	1
Nephritis .....	1
Cases unknown .....	3
<b>Total .....</b>	<b>16</b>

Tuberculous Ancestry.

Father and mother died.....	1
Father died .....	4
Father ill .....	11
Mother died .....	5
Mother ill .....	2
Other relatives ill .....	7
<b>Total .....</b>	<b>30</b>

More Than One Part Tuberculous.

Spine, knee .....	1
Spine, gland .....	2
Spine, hip .....	1
Spine, jaw, elbow .....	1
Spine, jaw .....	1
Spine, elbow .....	1
Hip, ankle .....	1
Hip, elbow .....	1

Knee, elbow .....	1
Rib, finger .....	1
Finger, gland .....	1
Orbit, rib, gland .....	1
<b>Total .....</b>	<b>13</b>

In addition to the 107 cases discharged, there were in the hospital on January 1, 1909, 41 cases, as follows:

	Early.	Advanced.	Total.
Spine .....	6	12	18
Hip .....	3	7	10
Knee .....	1	4	5
Elbow .....	1	2	3
Ankle .....	0	3	3
Gland .....	1	0	1
Syphilis .....	0	1	1
<b>Total .....</b>	<b>12</b>	<b>29</b>	<b>41</b>

THE SURGICAL ANATOMY OF THE GASSERIAN GANGLION, WITH SPECIAL REFERENCE TO THE DEEP INJECTION OF THE NERVE ROOTS FOR TRIFACIAL NEURALGIA.\*

By WILLIAM FRANCIS CAMPBELL, M.D.  
BROOKLYN-NEW YORK.

THE Gasserian Ganglion, or ganglionic enlargement in the sensory root of the 5th nerve, was first described by Raimund Balthasar Hirsch in 1765. He called it "Ganglion Gasserii," in honor of his teacher, Johann Lorenz Gasser. It appears, however, not to have received general recognition among anatomists for some time. Most of the books published early in the last century do not even hint at this structure. For the relief of intractable trifacial neuralgia, the ganglion was first attacked by Rose in 1890. The location and anatomical relations of the Gasserian ganglion make operation upon it a most formidable procedure. Leastways the mortality due to its removal averages to date over 10%. It is not surprising, therefore, that the leading surgical thought is seeking safer routes to the ganglion itself, and less dangerous measures in general for the operative relief of trifacial neuralgia.

Let me endeavor to show you the *status quo*. Imagine a hand, in which the two middle fingers are missing, placed palm against a depression on a bony wall and you have an analogy of the position of the Gasserian ganglion. The wrist will represent the sensory root, the hand the ganglion, and the three fingers its branches.

The ganglion is situated at the apex of the middle fossa of the skull, opposite the midpoint of the zygoma at a distance anywhere from four to seven centimeters in depth. The depression in the bony wall in which the ganglion is lodged is an indentation at the apex of the petrous portion of the temporal bone, and is called Meckel's cave. The most important structures in the middle fossa are the temporo-sphenoidal lobe of the brain, the dura mater, and the middle meningeal artery.

\* Read before the Brooklyn Surgical Society.

In order to appreciate the difficulties encountered in seeking an approach to the ganglion let us direct our attention to the middle fossa of the skull. In 1901, Amyx made observations to which we can in great measure subscribe. He found that skulls, which exclusive of additional muscles or the zygomatic arch are wide just in front of the ears, present no bony prominences in the floor of the middle fossa. On the other hand, where the transverse diameter in front of the ears is smaller, but the external bony prominences are large and sharply marked, the floor of the middle fossa is studded with large bony projections situated external to the foramina ovale and rotundum.

Then again a third type is often encountered, namely:—A combination of the other two. A knowledge of the aforesaid facts will give a hint of the condition to be expected.

Amyx has made his observations on over 50 skulls. Ours were made on a similar number and we agree with his findings, but we would like to add that where the middle fossa is narrow, it is in the majority of cases deep, and under these conditions the glenoid cavity either presents no projection at all into the fossa, or else is marked by a very slight eminence.

While still in the middle fossa, two prominent anatomical factors must be recognized—the dura mater and the middle meningeal artery. The dura mater, at the region of the petrosal apex, separates into two layers in order to ensheath the Gasserian ganglion. It is evident, therefore, that whatever is the route chosen to attack the ganglion, the dura must ultimately be divided. But at this point, the membrane exhibits certain peculiarities of attachment, which are of great import for the successful enucleation of the ganglion. First of all the layer of dura separating the brain from the ganglion is very adherent to the superior surface of the latter structure, so that in gasserectomy great care must be exercised not to puncture the membrane and thus enter the brain. Beneath the ganglion the characteristics of the dura mater can be summed up in two words—*firm attachment*. It is firmly attached to the bone, it is firmly attached to the margins of the anterior lacerated foramen, the foramina rotundum, ovale and spinosum, and I need but call your attention to the presence in this region of a suture (the temporo-sphenoidal) to emphasize another point of firm dural attachment. Unfortunately the dura is again very firmly attached to the inner border of the ganglion, being the region of its intimate relation with the carotid artery and cavernous sinus. In practicing evulsion of the ganglion, careful dissection from the dura in this particular region will be rewarded by a minimum hemorrhage.

The dura mater is found to be especially thick and adherent around the foramen spinosum. This is a very fortunate condition because the middle meningeal artery coming through the

aforesaid foramen is thus more or less protected from injury in manipulations around the anatomical field.

We now face the other important anatomic factor in the middle fossa, namely: the middle meningeal artery. Normally the artery begins behind the ganglion. Coming through the foramen spinosum, it takes a short, gentle *turn backwards* and becomes enveloped by dura mater. It then courses outward following the concavity in the floor of the middle fossa until it reaches the lower anterior angle of the parietal bone, where the artery enters either in a deep groove, or an incomplete bony canal. Its length varies between 3 to 6.5 cm. Perhaps it would be well to remind you that our chief concern is with the so called *anterior branch* of the middle meningeal, in as much as it is the main continuation of the artery and is the branch which we must consider in operations about the ganglion.

While the middle meningeal artery is a possible source of hemorrhage and some operators advise either its ligation or that of the main trunk from which it branches, still in skilled hands bleeding from the middle meningeal artery becomes a negligible factor, and Cushing's advice to lift the artery with the dura from the bone and thus convert the middle meningeal artery from a "swing to an arch," and work beneath the arch will greatly assist in minimizing the aforesaid danger. Of course no provision can be made against an *anomalous* course of the vessels, and it simply becomes a matter of being on guard. Apparently the most common anomaly is where the foramen spinosum lies very close to the foramen ovale. In fact I have seen a skull where the foramen spinosum seemed to be a continuation of the ovale. Sometimes the artery passes *through* the foramen ovale, being separated from the nerve branch merely by one or two layers of dura. Then again, the foramen spinosum may lie between the foramina ovale and rotundum, and at times as far forward as the latter. In a few instances the artery was altogether missing.

Annoying hemorrhage which sometimes compels the surgeon to pack the field of operation and defer proceedings anywhere from a few minutes to a few days, is furnished by the emissary veins of the dura mater. Various operators deal with this emergency in various ways, and the anatomy of the part is not distinctive enough to call for any particular mode of surgical procedure. A more important source of hemorrhage during gasserectomy is the cavernous sinus. Bound up so intimately as is the Gasserian ganglion (especially its ophthalmic division) with the cavernous sinus, and being furthermore such an apparent source of prolific bleeding, it will be readily seen what care is called for in stripping the ganglion away from the sinus. The relation of the two makes evident a point in the surgical technic. The cavernous



sinus is situated for the greater part in front of the ganglion; hence, in enucleating the ganglion, hemorrhage from the sinus will be better anticipated if the former be prised from behind and pulled towards the outside.

A dangerous source of hemorrhage during gasserectomy is injury to the internal carotid artery. The artery lies immediately inside the body of the ganglion. It is intimately connected with the dura of the ganglion. To avoid hemorrhage from this vessel, it is well to carefully dissect away the ganglion with a blunt dissector and make sure that the dissector can be passed between the two structures before any tension whatever is put upon the nerve element. In many of the skulls examined by us, the carotid artery never came in contact with the ganglion, because the former ran all the way through a bony canal, in the apex of the petrosal bone; only when it emerges to form the ophthalmic artery did it come close to the ophthalmic division of the ganglion. So much for some of the mechanical difficulties in attacking the ganglion directly. Let us now direct our attention to the branches of the ganglion for the purpose of ascertaining how and where the nerve roots may be injected.

To continue our analogy of the Gasserian ganglion and its branches to a hand with three fingers, let us imagine that these fingers reach out through three foramina at the base of the skull to grasp certain anatomical structures. The first of these branches, known as the *ophthalmic division*, passes out through the sphenoidal fissure. (Fig. I, a.)

The second branch known as the *superior maxillary* leaves the skull through the foramen rotundum. (Fig. I, b.)

The third division known as the *inferior maxillary* leaves the skull through the foramen ovale. (Fig. I, c.) Through its own function, as derived from the Gasserian ganglion, this branch leaves the skull in company with the motor root of the fifth nerve and the two become intimately associated immediately they attain the pterygoid region. Thenceforth the inferior maxillary division of the Gasserian ganglion becomes a mixed nerve. Its motor fibres, supply the tensor tympani and palati muscles, as well as the muscles of mastication, the mylohyoid and anterior belly of the digastric.

Briefly speaking the fifth cranial nerve, by means of the Gasserian ganglion controls either altogether, or for the most part, the sensory innervation of the eye, the skin of the face, the teeth and the mucous membrane of the nose and mouth. One can readily perceive the enormity of reflexes which may be carried to the brain along this route. It is when these reflexes become painful that surgically we seek to inhibit the transmission of the particular impulse, or failing to do so, turn our attention to excision of the ganglion or section of its sensory root.

Before resorting to the radical operation, it

is both reasonable and desirable to attempt relief by attacking the peripheral sources of irritation. These sources are in the regions previously mentioned, and a study of the disposition of their sensory nerve fibrils leads us into a most interesting and complicated maze of anatomic data.

Let us follow the individual nerves as they leave the ganglion. We are struck immediately by two peculiar facts: Firstly, each division, though destined to innervate the exterior gives off a branch *inside* of the cranium, and secondly, each of these roots contributes a small branch to enter into the formation of new ganglia.

*The other division of these ganglia is derived from the sympathetic system.*

We sometimes meet with cases of trifacial neuralgia unbenefitted by surgical treatment of a peripheral branch. Might this not be due to the fact, that the intracranial branch is the one affected and that it has not been reached in the treatment?

The new ganglia bring the fifth nerve in communication with the sympathetic system—what an immense source for reflexes to be brought from distant parts to the trifacial nerve:

I am led by my observations to include another factor in the destination of the trigeminal branches—the *fifth nerve is in some way or other connected with all of the other cranial nerves*. We know this to be a fact with the third, fourth, sixth, seventh and ninth nerves. I cannot help but think that when the nasal branch of the ophthalmic division enters the nose through the nasal fissure, that it comes in contact with filaments of the *olefactory nerve*. It seems reasonable to believe that in the eye the ciliary branches of the ophthalmic root should come in contact with the terminal branches of the *optic nerve*. The auditory nerve sends a branch to the geniculate ganglion of the facial nerve, and the latter is considerably in communication with the branches of the fifth nerve. No great hardship would be encountered in tracing a connection between the *pneumogastric* and *trifacial* by means of the sympathetic system.

Confronted with a case of trifacial neuralgia and desirous of employing means towards treating the peripheral regions first, we find, that although on the face, the branches are here, there and everywhere, yet each main division makes its appearance through a distinct foramen and reigns over a definite area. If the terminal filaments of the three nerve trunks were traced over the face, they would form a mask which would cover it all but the ears and lower angles of the lower jaw.

The three bony foramina through which the nerve trunks reach the face are known respectively from above downwards as the supra-orbital, infraorbital and mental. The nerves passing through them have the same name as the foramen. These foramina all lie in a vertical line

draw downward from the supraorbital foramen to the interval between the two bicuspid teeth. This line crosses both the infraorbital and mental foramina (Fig. II.).

With this preliminary consideration of the trifacial field in which only a few of the more important facts have been emphasized let us consider briefly the injection treatment of trifacial neuralgia and its practical application.

First: Let me call your attention to the fact that the three Gasserian branches have a deep exit from the cranium and a superficial exit (See Fig. I). Their deep exit, let me recall, is from the sphenoidal fissure, the foramina rotundum and ovale, their superficial exit, the foramina supraorbital, infraorbital and mental. It is quite evident that the injection of the superficial branches as they exit on the face is a procedure of little difficulty, requiring but superficial knowledge, since the foramina are all palpable on the face and are not over  $\frac{1}{2}$ -inch distant from the surface. The injection of these branches, therefore, need not concern this inquiry. But it has been found that the injection of the superficial branches is not always effectual, and it is the extension of this treatment to the injection of the branches as they exit from the foramina ovale, rotundum and sphenoidal fissure that presents a problem involving primarily anatomic accuracy. In other words, can a needle be passed with safety to the deep exit of these nerves; can the nerve be reached with a fair degree of certainty and what are the anatomical guides?

We have experimented on fifty skulls by exposing the foramina of exit within the skull, passing the needle to the point chosen and injecting methyl blue solution. When the methyl blue immediately appeared through the foramina we concluded that the needle point had reached the position desired.

We present, therefore, for your consideration the following guides for deep injections of the ophthalmic, and the superior and inferior maxillary divisions as they exit from the sphenoidal fissure, the foramina rotundum and oval respectively. The writer uses a needle 5 cm. long and 1.5 mm. in diameter, without stylet. To inject the nerve at its exit from the sphenoidal fissure insert the needle at the rim of the orbit at a point corresponding to the fronto-malar articulation. Pass the needle into a depth of  $3\frac{1}{2}$  cm., being sure to hug the outer wall of the orbit. *Special accuracy must be used to avoid the optic nerve.* (Fig. III. a.) To inject the nerve at its exit from the foramen rotundum insert the needle at the lower border of the zygoma at a point opposite the posterior border of the frontal process of the malar bone. Push the needle directly inwards and slightly upwards for a distance of 5 cm., the point of the needle finally reaches the pterygo-maxillary fossa in which is found the nerve making its exit from the rotundum (Fig. III, b). If the needle after passing the subcutaneous tissue strikes bone, it is the coronoid

process of the lower jaw. The way must be cleared by having the patient open his mouth and placing a gag between the teeth.

To inject the inferior maxillary division at its exit from the foramen ovale, insert the needle at lower border of the zygoma  $\frac{1}{2}$  cm. in front of the condyle of the jaw, push the needle directly inward and slightly downward for a depth of 4 cm., at which distance the point of the needle is at the ovale foramen. (Fig. III, c.)

It may be well to state that the injection is seldom made directly into the nerve, but rather in the vicinity of the nerve and the diffusion of the agent accomplishes the desired purpose.

The solution used is the cocaine, chloroform, alcohol solution of Patrick & Hecht, consisting of a grain of cocaine, X minims of chloroform, and  $\frac{1}{2}$ -oz. of 80% alcohol.

A curious fact about the alcohol injection is that it does not destroy the nerve, but in some way changes its chemistry. In other words, the pain is relieved, but sensation is not destroyed. The patient suffers considerable pain during the injection, but these patients are accustomed to excruciating pain and are willing to undergo temporary suffering if relief is the reward.

No preliminary anesthesia is used, for the reason that the best evidence of a successful puncture is the spasm of pain, numbness and anesthesia over the course of the nerve successively reported by the patient.

Ecchymosis and swelling are to be expected and trismus following injection of the third division is to be anticipated, but they are never more than a temporary inconvenience.

#### *Some Practical Observations.*

In the practical application of this treatment the author makes the following suggestions as the result of his clinical observations:

a. In all cases where no previous operation has been performed it will be well to first apply the injections to the superficial exits of the nerves as they appear on the face before making the deep injections. In some of our cases such treatment seemed to be sufficient and there is no need for making the deep injections unless the pain returns.

b. In cases the subject of previous operation (gasserectomy, Abbe's operation, etc.) the deep injection only was effectual.

c. Although in the majority of cases the pain is almost immediately relieved, in a few instances the pain is worse after the injection and may continue for a few days. This condition is undoubtedly due to increased swelling of the parts in the vicinity of the nerve and subsides as the swelling decreases. In one of our cases intense pain followed deep injection of the second division and continued for seven days, after which the pain disappeared and the patient is entirely free from pain for the first time in ten years.

d. The solution used should be freshly prepared for each treatment. The ingredients undergo rapid chemical changes.









## FOOD ADULTERATION.\*

By Prof. J. C. OLSEN,

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THE human race during its slow and painful progress from the uncultured savage to civilization has depended almost entirely upon appetite as a guide in the selection of the amount and kind of food to be consumed. In this heroic struggle, man needed a diet capable of maintaining his maximum strength, but often was fed in such a manner that not only was his strength seriously impaired, but disease and death found an easy prey in their ignorant victims. Secretary Wilson undoubtedly correctly summarizes the progress which has been made in feeding man by saying that the workingman of to-day is better fed than was Queen Elizabeth, three centuries ago.

Only within the last century has the problem of nutrition been studied by the powerful and searching methods of modern science. Much progress has already been made, but we are still very far from knowing with scientific certainty just what the ideal diet is. We may confidently expect, however, with the present rapid growth of our knowledge of the functions of food, that within a decade or two the nutrition of man will be placed upon a scientific basis. I do not mean by this statement that humanity as a whole will be living on the ideal diet. I very much fear that the determination of what such a diet should be is by far the easiest of the problems of nutrition which await solution. Before this ideal condition is reached, a very large problem of education must be solved, namely, teaching the masses what constitutes the best and most nourishing food. A still more difficult problem confronts us in the production and distribution through commercial agencies of a pure and ideal food supply.

When endeavoring to educate the masses, we must contend with ignorance, conservatism, and, worst of all, a slavish indulgence of appetite. I fear that far too many of us are quite willing to endure three hours of agony of the stomach for three minutes' gratification of the palate. We lack even such determination as was shown by the indulgent and gluttonous Romans, who tickled the throat after one dinner so that they might disgorge it and have the pleasure of eating another.

When endeavoring to induce the business world to supply wholesome pure food, we meet a cupidity which does not hesitate to take the risk of poisoning the consuming public, on which the food producer must rely for his trade. In the words of the fable, "In their greed for money they kill the goose that laid the golden egg." I have often been surprised, on asking an intelligent food manufacturer or salesman about

his products, to find absolute ignorance with reference to such questions as the amount of sulphurous acid or other questionable ingredient in his product. The honest producer, on the other hand, is called upon to solve the most difficult problems of industrial technique in his endeavor to meet the demands of the advance guard of the pure food squad and compete with the large number of unscrupulous producers. On the whole, our American business men have failed to take the lead in the manufacture of pure foods as they have in other lines of manufacture. Only occasionally are men found who have a thorough knowledge of the production of pure foods or whose products are much in the lead of the requirement of the pure food laws.

That a body of physicians, such as I have the honor of addressing to-night, should spend an evening in taking account of the progress made in this great undertaking, is a most hopeful sign. To whom but the scientifically trained students of the human body should the public look for guidance in this matter, or the expression of opinions which shall support the pure food authorities and raise the business standards.

The question which we shall endeavor to answer to-night is: What is the present position of the forces which are making a fight for a pure and wholesome food supply? What progress has been made in recent years?

I assume that this audience is not vitally interested in the financial side of this question. The public pocket-book may be affected and the consumer defrauded if cotton-seed oil is sold for olive oil, or if the sparkling French champagne was produced in California, or if the Camembert cheese, in which you take so much delight because it is sold in a box which bears the undoubtedly genuine French label, was manufactured in New York from American milk. It is such a simple business proposition to import empty cheese boxes and fill them with domestic cheese. Americans will pay so much more money if they can be made to believe that it is an imported food that they are buying.

Frauds of this kind are numerous enough, but they cannot be said to affect the public health. The adulterations which do this may be divided into two large classes:

1. The lowering of food values.
2. The introduction of poisonous constituents.

In studying this question, it is important to inquire what is meant by food values? At the very outset we are met by the fetish of the dollar as a measure of values. It is difficult for most of us to disabuse ourselves of the idea that because olive oil costs five times as much as cotton-seed oil it must be worth five times as much to us for food. It requires an effort on our part to realize that food can serve but two functions in the human body. It can build up tissue and it can furnish energy. Its value will be propor-

\* Read before the Medical Society of the County of Kings, at Brooklyn, December 21, 1909.

tional to its ability to do these two things for us. It is true that our tissues are in the main built up by the protein or nitrogenous parts of our food, while the energy we use is largely furnished by the carbohydrates, starch and sugar, as well as the fats of our foods. The wonderful economy of the human system is shown by the fact that when any portion of the tissues is worn out and ready to be discarded, it is broken down in such a manner that its energy is liberated and made available for the activities of the body. All of the food, therefore, which is assimilated, ultimately gives up its energy to the human system. We can, therefore, use the amount of energy present in foods as a measure of their value to us. The simplest method of measuring this energy consists in converting it into heat which can be easily measured. The food is burned in a closed chamber, which is immersed in a measured amount of water. By noting the increase in temperature of the water, the calorific or energy value may be calculated. The common unit used is the large calorie, which is the amount of heat necessary to raise the temperature of one liter of water one degree centigrade.

Elaborate experiments have been conducted to show that the same amount of heat or energy is liberated when a given food is consumed in the human system as when the same food is burned in a calorimeter. Calorimeters have been constructed large enough for a man to live in. The temperature of the air which enters and leaves is carefully noted so that the heat given off may be measured. The amount of energy expended in muscular work can be calculated from the work done. The amount of food burned up can be calculated from the carbon dioxide passing out of the lungs. Analyses of the feces gives the amount of food which passes out undigested. Analyses of the urine gives the amount of protein or nitrogenous food decomposed in the subject of the experiment. The amount of food consumed is carefully determined.

Chemists have long been accustomed to keep complete records of all material entering a factory, and then by chemical analyses of all the products leaving, have been able to make a balance sheet upon which any loss of material will inevitably appear. Professor Atwater and other physiological chemists have applied the same method to the study of the food metabolism of the human system. The results have clearly shown that by far the most important function of food is furnishing the energy to keep the mechanism of the complicated organism in motion. The average adult requires every 24 hours the amount of food which will furnish about 3,000 calories of energy. About 1,600 calories, or a little more than half of this amount, is needed to maintain the activities of the vital organs, circulation, respiration and the mainte-

nance of the temperature of the body. About 500 calories are required for the work of digestion. The remainder, or about 1,000 calories, for the average adult, are available for external muscular work. If severe muscular work is being done, energy may be obtained by consuming more food. However, only 35 per cent. of this energy can be converted into muscular work by the human engine. The remainder is given off as heat.

The following table gives the amount and cost of some common foods which will furnish the 3,000 calories of energy required every 24 hours:

Cost of a Daily Ration of a Single Food.

Food.	Price.	Cost of 3,000 Cals.
Flour .....	3½ cts. per lb.....	6.3 cts.
Oatmeal .....	5 cts. per lb.....	8 cts.
Rice .....	8 cts. per lb.....	15 cts.
Sugar .....	5 cts. per lb.....	8 cts.
Beef .....	20 cts. per lb.....	58 cts.
Milk .....	8 cts. per qt.....	34 cts.
Eggs .....	40 cts. per doz.....	184 cts.
Cheese .....	18 cts. per lb.....	26 cts.
Fish.....	14 cts. per lb.....	101 cts.
Potatoes .....	80 cts per bush.....	12 cts.
Cauliflower .....	15 cts. per lb.....	215 cts.
Onions .....	14 cts. per lb.....	215 cts.
Strawberries .....	13 cts. per lb.....	250 cts.
Butter .....	35 cts. per lb.....	29 cts.
Olive Oil .....	62 cts per qt.....	23 cts.
Bananas .....	15 cts. per doz.....	40 cts.
Oysters .....	12 cts. per doz.....	553 cts.

Few, if any, of these foods could be used alone, largely because few foods contain the essential constituents in the proportion required by the human system. Many attempts have been made to determine what proportion of these constituents gives the ideal diet. Most of these investigations have simply served to tell us what is the prevailing custom in this respect.

ADULT RATION.

	Protein grms.	Fat grms.	Carbohydrate grms.	Calories.
Average Adult .....	100	100	420	3,030
Average of 7 Boat Crews .....	155	177	440	4,085
Football Team .....	181	292	577	5,740
U. S. Army .....	85	280	500	4,944
Old Man .....	92	45	332	2,149
Old Woman .....	80	49	266	1,875
One lb. Coal .....				3,500

STANDARD RATIONS (HUTCHINSON).  
*Different Ages.*

	Protein grms.	Fat grms.	Carbohydrate grms.	Calories.
Child 1½ years.....	42.5	35	100	910
2 years.....	45.5	36	110	972
3 years.....	50	38	120	1,050
4 years.....	53	41.5	135	1,157
5 years.....	56	43	145	1,224
8-9 years.....	60	44	150	1,270
12-13 years.....	72	47	245	1,737
14-15 years.....	79	48	270	1,877

Custom in the matter of diet is largely determined by appetite. I need not remind a body of physicians that the appetite is very far from being a safe guide. The so-called standard diets obtained in this manner call for 100 to 150 grams of protein, 100 to 200 grams of fat and 500 grams of carbohydrates.



An investigation of this question in a much more scientific manner has been conducted by Prof. Russell H. Chittenden, of Yale University. He made careful tests of the strength and endurance, as well as the general health of a large number of subjects whose diet he systematically varied. An examination of the results which he obtained point to the astonishing conclusion that we have been consuming at least twice as much protein as is necessary to keep the body in excellent repair. He concludes that at least half of the protein ordinarily consumed is immediately broken down in the system, the nitrogenous portion being eliminated while the remainder is used as a carbohydrate for furnishing energy. This process is so laborious that the consumer of large quantities of protein has very much less energy and endurance than he who abstains from flesh foods.

Prof. Chittenden's subjects showed the most marvelous increase in strength and endurance when living on a very low protein diet.

Increase of Total Strength of Squad of Soldiers Living on a Diet Containing 53 Grms. of Protein.

October.	April.
2,560	5,530
2,835	6,269
2,210	4,002
2,504	5,178
2,970	4,598
2,463	5,277
2,543	4,869
3,445	5,055
3,245	5,307
2,838	4,581
3,070	5,457

Increase of Total Strength of College Athletes Living on a Diet Containing 50 Grms. Protein.

January.	June.
4,913	5,722
6,016	9,472
5,993	8,165
2,154	3,983
4,584	5,917
5,728	7,135
5,351	6,833

By a system of tests of the strength and endurance of the various groups of muscles of the body, he obtained results which, when combined in a single figure, gave the total strength of the body. These experiments help us to understand the wonderful strength and endurance of the Chinese and Japanese coolies, who live on a vegetable diet. It has also been known that a number of common diseases of the kidneys, as well as rheumatism, were produced, or at least aggravated, by the consumption of high protein or meat foods. It may well be that the decomposition products of such foods are difficult to eliminate and poison the tissues while we ignorantly continue to load the system with what is not needed and which it eliminates with the greatest difficulty. The fact that these views are vigorously combated by the highest authorities

merely serves to emphasize our astounding ignorance on such a vital question.

Having given a brief resumé of the progress which has been made by the use of scientific methods toward answering the question as to what constitutes food values, we shall turn to the examination of the condition of our commercial food supplies. When science has failed to reach satisfactory conclusions, we can hardly expect to find that the business world has solved its problem.

Taking up, first, the question of the nutritive value of foods as sold, we find a very considerable variation in some foods, while others are seldom or never adulterated. This is true of flour, sugar, fresh vegetables and meats. Other foods are systematically and continually adulterated so as to lower their food value. Milk, which should contain over 13 per cent. of solids and 3½ to 4 per cent. of fat, is frequently found deficient in this respect, as the following table shows.

Percentage of Fat in New York Milk.

Dairy No. 1.....	3.8%		
Dairy No. 2.....	3.8%	3.8%	3.6%
Dairy No. 3.....	3.4%	3.6%	3.5%
Dairy No. 3, certified.....		4.8%	
Dairy No. 4.....		3.3%	
Dairy No. 5.....		3.0%	2.5%
6c. milk in cans.....	3.2%	3.2%	3.1%

The removal of 1 per cent. of the fat represents one-twelfth or 8 per cent. of the solids and a much larger percentage of the nutritive value, because the calorific values of fats is twice that of other food constituents. Bread, another staple food, is made in such a manner that it is robbed of much of its nourishment. Well-made bread should contain 60 to 65 per cent. of solids, while it is not infrequently found with only 50 per cent., the remainder being water. In the same manner, water may be sold as butter. This excellent food should not contain over 15 per cent. of water, while 20 per cent. is not uncommon. The extent to which adulterations of this character may be carried is shown by the fact that tomato catsups are found on the market containing 10 per cent. of solids, while a good article of catsup will contain 35 to 40 per cent. of solids. A large amount of cake is sold in which the eggs have been replaced by "egg substitute," which is simply a yellow dye.

While much of the underfeeding of the poorer classes is due to such lowering of food values, a still larger amount is due to ignorance of how to spend money so as to get the greatest amount of nourishment for a dollar, as well as ignorance of such methods of cooking as will utilize to the best advantage the food which is purchased.

A still greater danger is found in the presence of actually poisonous substances in foods. They may be divided into two classes:

1. Bacteria.
2. Inorganic poisons, such as preservatives and coloring matter.

Bacteria are probably the most dangerous of all impurities which are found in foods. This is very strikingly shown in the case of milk.

Death Rate of Children in City of Rochester in Relation to Milk Supply.

	DEATHS DURING				Total
	July.		August.		
	Under 1 yr. I-5 yrs.	Under 1 yr. I-5 yrs.	Under 1 yr. I-5 yrs.	Under 1 yr. I-5 yrs.	
<i>Impure Milk Supply.</i>					
1889 to 1896 .....	784	145	646	169	1,744
<i>Pure Milk Supply.</i>					
1897 to 1904.....	301	111	347	105	864
Reduction in deaths by use of pure milk.....					880

Death Rate of Infants Fed on New York City Milk.

Store milk in open cans.....	20%
Condensed milk .....	20%
Ordinary bottled milk .....	9%
Strauss' Pasteurized milk .....	3%
Certified and mothers' milk .....	None
Infants born in New York in 1977.....	66,750
Of these there were fed on mothers' milk.....	54,000
Of these there were fed on heated cows' milk....	7,000
Of these there were fed on raw cows' milk.....	5,400
Infants killed by impure milk (estimated).....	4,000

Twenty per cent. died of open can milk. As lectures have recently been given on this subject I need not dwell upon it. Oysters grown in contaminated water may produce typhoid and other intestinal diseases.

Meats may be contaminated from two sources—the animal may be diseased, or on account of unsanitary methods of handling, disease bacteria may be introduced.

Vegetables and fruits, especially when eaten raw, may be infected from the fertilizer used. Gelatine is peculiarly liable to contamination on account of the material from which it is made and also because glue is manufactured from very similar materials. It is a comparatively simple matter to bleach the glue and sell it for gelatine. When the latter has been made up into candy, ice cream, jelly or other food products, it is almost impossible to determine by chemical analysis if a pure product has been used. On account of the keen competition in prices, bleached glues are often sold for use in foods. Not more than a year ago I had occasion to analyze a sample of glue used by one of our large ice cream manufacturers.

Not only is the consumer absolutely helpless to guard against food contaminated in this manner, but even the chemist and bacteriologist often find it difficult if not impossible to show by analysis of the finished product that unsanitary methods have been used in its production. The only effective method of protecting the consumer consists in an efficient system of inspection of all food factories. The only foods whose preparation are at present under such a system of inspection are meats and meat products, such as oleomargarine. This was brought about by a highly sensational exposure of the conditions ex-

isting in the packing industry. Even this would probably have failed to bring about any efficient remedy if the cudgel had not been taken up by that exceptionally enthusiastic and vigorous president, Theodore Roosevelt. I have no doubt that conditions quite as bad can be found to exist in many other of the food industries. With the present attempts at economy on the part of the National Government, not only will there be no extension of its activities in enforcing pure food laws but there is danger that the work of the pure food squad will be greatly curtailed unless emphatic expressions of public opinion are made. There are plenty of unscrupulous manufacturers who, at the first indication of inactivity of the enforcement of the pure food laws, are ready to resume the manufacture and sale of unwholesome foods.

The inorganic poisons which are introduced into food naturally fall into two large classes, namely, dyes and preservatives, to which may be added a considerable number of substances used in smaller amounts, such as sulphuric acid, paraffine, clay, iron oxide, copper sulphate, etc.

The aniline dyes have been found very well adapted for use in foods, because of their brilliant colors and stability under the treatment to which foods must be subjected. In this class of substances are found the most violent poisons as well as a number of absolutely harmless compounds. This great diversity of character is well illustrated by the following experiments: Using dinitrocresol, or *saffron substitute*, one-quarter of a gram was administered to rabbits by the œsophageal tube. For a short time no abnormal symptoms were shown. The respirations soon became more rapid. The animals became quiet, the hind limbs dragged and the animals fell to one side. The pupils were generally dilated and the breathing became more rapid and then ceased for a time. The eyes, the bulbs of the conjunctiva, were insensitive and the pupils strongly dilated. The extremities twitched. Finally spasms supervened as a general rule, and Cheyne Stokes respiration occurred. The intervals between the respirations increased until they reached 10 to 15 seconds, when death ensued from asphyxia. These symptoms usually occupied 20 to 30 minutes.

Dogs died with similar symptoms from doses as small as 0.1 gram, the toxic dose for dogs being 7 to 10 milligrams per kilo of body weight. A woman died in five hours after taking by mistake 4.5 grams of saffron substitute.

The following experiments were carried out with *fuchsin*: Two rabbits were fed one-half gram daily in 50 grams of barley for several weeks without showing any ill effects whatever. Other rabbits were fed 15 grams of the dye in 15 grams of barley for two weeks without showing any ill effects. One per cent. solutions of the dye were injected directly into the blood

of the rabbits without showing any ill effects. Dogs were fed 20 grams daily, while a man took  $3\frac{1}{2}$  grams in a week without showing any ill effects.

An investigation of the health of 52 workmen employed in a fuchsin factory showed that there had been no cases of ill health, although some of the workmen had been employed for as long as 18 years.

While a few harmless dyes of this character have been found, unfortunately it is extremely difficult to prepare these compounds in pure condition. Not only do different dyes occur together, but arsenic is a constant constituent in considerable quantity. This is due to the fact that in the usually long process of manufacture a number of the chemicals used will almost invariably be found to contain arsenic, a portion of which will remain with the dye. It is also advantageous in many cases to form a compound of the dye with a metallic compound, which is usually poisonous.

Under these conditions, it is not surprising that poisonous aniline dyes have been used in foods. Under the Food and Drugs Act of 1906, the U. S. Department of Agriculture employed Dr. Barnard Hesse, of New York, an eminent specialist in aniline dyes, to prepare a list of dyes which could be used in foods. He reported, after an exhaustive investigation, that there were seven of such dyes out of the thousands which have been produced. Under a ruling of the Department of Agriculture, these seven may be used in foods and no others.

Before Dr. Hesse undertook this investigation, various dye houses sold so-called pure food dyes. The investigation showed that none of these lists contained all of these seven dyes. In every case one or more poisonous dyes were included in the list. There were even cases where a manufacturer would quote a passage from some authority to prove the harmlessness of one of his dyes, while in the same book could be found passages condemning as poisonous another dye on his list. I quote this incident to show the great need of Government supervision of our food supplies.

After the seven harmless dyes had been selected, the problem of preparing them in pure condition free from admixture with other dyes, as well as arsenic and other by-products of the manufacture, remained to be solved. Several firms undertook the task and at great expense have succeeded in developing methods for preparing dyes which meet the specifications of the National Government. The chemists of the Department of Agriculture are also developing methods of testing foods for the presence or absence of these dyes.

In the meantime, most of the foods manufacturers have continued to use the same dyes as in the past, paying little or no heed to the pure food movement, and will doubtless continue to

do so until the pure food law is enforced. The following incident shows the methods in vogue: A salesman for a large dye house sold, in the course of his business, a considerable quantity of a dye which is known to be poisonous. In a short time his customer stated that he desired to purchase another lot of this dye. The salesman, out of curiosity, asked him how he had used so much of the dye in so short a time. He stated that he had colored foods with it. If the salesman had known that the color would be used in foods, he would have sold him a different dye. As the food had already been sold it could not be recalled. Possibly some of the customers who were made ill were attended by physicians in this audience without knowing the cause of their illness.

Copper sulphate should be mentioned with the dyes. It is used solely for the purpose of preserving the green color of canned vegetables. I need not discuss the poisonous character of the salts of copper before this audience. Fortunately, the use of copper sulphate has not become common with domestic canners but has been confined almost entirely to imported foods. The amount allowed has been restricted, so that vegetables containing excessive quantities are no longer found on the market, while all foods containing this coloring matter are clearly marked to indicate this fact.

Probably no substances used in foods have given rise to so much discussion as the chemical preservatives. Many questions are involved in a discussion of this subject, which in all its ramifications is by no means simple.

The question which first presents itself is whether the preservatives themselves are poisonous. We find that they differ very much in this respect. Formaldehyde is perhaps the most violent poison. A youth who took  $2\frac{1}{2}$  grams in a 4 per cent. solution suffered from violent vomiting and died in 29 hours.

Violent abdominal pains were experienced for several days by a man who took milk containing 1 part in 12,500 of formaldehyde.

In an experiment upon kittens, three out of five died on being fed milk containing 1 part in 50,000.

Digestion experiments show that formaldehyde hinders digestion by pepsin and trypsin and in dilution of 1 to 1000 prevents action by rennin.

It is well known that formaldehyde hardens and renders insoluble such substances as albumin and gelatine. This action may account for its interference with digestion.

These poisonous properties of formaldehyde have been so generally recognized that its use in foods has been very generally condemned. The opposition to its use has been particularly vigorous, because it was used to a considerable extent for the preservation of milk. Both the public and the health authorities have been far

more interested in safeguarding the milk supply than any other food.

Hydrofluoric acid and fluorides have been used to some extent recently, especially in liquors such as beer. The acid is probably quite as poisonous as formaldehyde. Contact of a dilute solution with the skin often produces a feeling of soreness which persists for weeks.

Sulphurous acid and sulphites have been used to a very large extent in meats, fruit and fruit products, liquors and candy. This acid is very irritating to the mucous membrane and causes inflammation of the gastric mucous membrane as well as marked corrosion of the layers of the stomach wall and also affects the neighboring organs. Doses of one-half gram of sulphite in dilute solutions causes oppression and discomfort. Large doses produce headache, vomiting and diarrhea. The presence of a 5 per cent. solution in the stomach produces death.

Numerous feeding experiments on dogs and cats by various investigators have shown that these animals often show no apparent ill effects even when the experiments are carried on for many months, some animals even gaining in weight. Some animals suffer from purging, loss of appetite and of weight. On killing the animals and examining the organs, the kidneys invariably show inflammatory changes. This may not be apparent to the naked eye, but the microscope reveals the presence of fatty degeneration. Experiments of this kind would seem to indicate that feeding experiments on vigorous young men for a limited period cannot be conclusive with reference to a preservative, as the ill effects may be revealed only when serious organic disease of the kidneys or abdominal organs has been fully developed.

Personally, I should not be willing to use food containing sulphite in any large quantity on account of the action on the mucous membrane, as indicated by the serious throat troubles which result from inhaling only slight amounts of sulphur dioxide.

Borax and boric acid reduce the amount of starch digested by the saliva and arrest the action of rennin, while they do not seem to have much influence on the pepsin and amylopsin.

In feeding experiments on animals, dogs, rabbits and pigs show no ill effects. When very young kittens were fed on borated milk they were troubled with diarrhea, became greatly emaciated, and died in from 3 to 5 weeks, while 3 months' old kittens were apparently not affected.

In Dr. Wiley's experiments on young men he noted loss of appetite and body weight, headache and nausea. Boric acid is undoubtedly not as poisonous as formaldehyde, sulphurous and hydrofluoric acid.

Salicylic and benzoic acids and their salts are probably still less poisonous. The former is a well-known medicine, being a specific for rheumatism. It cannot be administered in all cases,

however, on account of its disturbing action on various organs. It irritates the stomach, producing pain and vomiting. It is excreted by the kidneys, occasionally irritating them and producing albuminuria and even hæmaturia. It has a depressing action on the heart. Salicylism follows its use with 60 per cent. of people—deafness, headache, delirium and vomiting, hemorrhage in various parts of the body, heart failure and death. A physician reported that he could reduce his pulse beat by 10 a minute by a dose of 10 grains. Where the kidneys or heart is diseased, great care must be exercised in its use.

Benzoic acid is less toxic in its effect on the system than any of the preservatives which have been extensively used. It is excreted from the system in the form of hippuric acid through the kidneys adding to the work of these already much overloaded organs. The most recent study of the effect of this acid on the system when consumed with food has been made by the Referee Board of the U. S. Dept. of Agr. of which Dr. Ira Remsen is the Chairman. Three separate squads of young men were experimented upon under the direction of Prof. Chittenden at Yale Univ., Prof. Long at the Medical School of Northwestern Univ., and Dr. C. A. Herter of Columbia Univ., at his private laboratory. The observations consisted of very careful medical observations of the subjects, including counts of the red and white corpuscles of the blood, also daily analyses of the urine and feces as well as the food consumed. The benzoic acid was given in the form of the sodium salt, a portion being added to each of the three meals. No evidence of disturbance of the digestion was discovered. The feces as well as the urine were normal throughout the experiments. The kidneys did not seem to be affected in any way. A careful study of the coefficient of digestibility of all constituents of the food showed nothing abnormal. The nitrogen was excreted as usual. So far as any changes in body weight were observed, the subjects increased in weight. Practically identical results were reported from each of the three squads. The board reported that up to 4 grams per day of sodium benzoate was without any effect on the digestive and nutritive processes.

No experiments were conducted by the board on children. In view of the results of previous experiments, it is possible that the immature or the aged may suffer from the consumption of a preservative, while vigorous young men might be unaffected.

A still more important question has not been answered by the Referee Board. Even though the preservative itself is entirely harmless, foods prepared with it may be unwholesome and inferior to foods prepared without it, so that it might be desirable to prohibit its use.

A study should be made of the action of preservatives toward bacteria. Among the large number of bacteria which gain entrance into

foods only a few give rise to the disagreeable odor and taste which we associate with decomposing foods. Substances have been selected as food preservatives on account of their ability to preserve the natural taste and odor of foods and not for their ability to prevent the growth of bacteria in general. Direct experiments on this point have shown that the action of bacteria is selective, that is—the growth of some species is retarded far more than that of other species. The bacteriological examinations of preserved and unpreserved foods have shown that when the foods begin to give a disagreeable odor and taste the preserved foods contain a much larger number of bacteria than the unpreserved foods. In other words the preservatives prevent the growth of the bacteria which produce the foul odors and tastes and allow other bacteria to grow at a rapid rate. In round numbers, the preserved foods can contain about 4 times as many bacteria as the unpreserved before seeming to be spoiled.

A considerable amount of evidence has been produced to show that even in the absence of any specific disease germs, the consumption of foods containing a large number of bacteria increases the death rate. This has been repeatedly shown with public water supplies. If the bacterial content is reduced by filtration or other means, not only is there a reduction in the death rate due to typhoid and other diseases known to be due to water born bacteria, but the death rate due to other diseases is also materially reduced. The same result has been repeatedly observed with milk. The death rate among children is reduced when milk containing a smaller amount of bacteria is used.

It would appear therefore that the use of preserved food is a menace to public health because such foods may be consumed while swarming with bacteria.

Another very important question is whether the use of preservatives renders it possible for manufacturers to use inferior or decomposed foods. It appears that all preservatives are not equally adapted for such use. Formaldehyde has been used to a considerable extent to deodorize eggs which were too badly decomposed to be sold. For this purpose the eggs are broken, the shells removed and the liquid treated with formaldehyde. This practice has been very largely stopped by the health officers.

Sulphites have been very largely used in the preparation of sausage meat or hamburger steak from the trimmings and odd ends which accumulate in the meat shops. These scraps must not be allowed to become too much tainted or the sulphite will not remove the odor. It is very effective, however, in restoring the bright red color to the meat which has become dark. On chopping such meat and adding the sulphite a very attractive sausage meat can be produced. Especially when it is exposed to the air the meat acquires a bright red color.

Taking human nature as it is, it would seem that the use of preservatives would not lead to the adoption of the most sanitary methods of handling foods. Food could be kept by the aid of the preservatives quite as long even though strict cleanliness were not observed. When we remember that bacteria will grow most luxuriously in the presence of the preservatives, the foods handled in this way cannot but be dangerous to health. One of the strongest reasons why the catsup manufacturers desire to use preservatives is that they have been accustomed to handle and keep tomato pulp in bulk until it is convenient to work it up into catsup. The finished product is also sold in barrels to restaurants where it is put into convenient receptacles for the table until the stock is exhausted. There is no question but that the liability to contamination of the catsup under these conditions is very great. A very thorough overhauling of the process would be necessary if the use of the preservative were prohibited.

A considerable number of food manufacturers have persistently refused to print on their labels a statement indicating the presence of a preservative in the food as sold. Only when forced by the pure food authorities have they consented to do so. Since the publication of the report of the Referee Board that benzoate of soda is no more harmful than salt, the fight to remove the statement, "Preserved with 1/10 per cent. of benzoate of soda" has been renewed.

It requires no extensive investigation to show that the amount of salt consumed by different individuals is far from a constant quantity. I fancy that if we were unable to instantly ascertain by our sense of taste the presence of an excessive or insufficient amount of salt, considerable discomfort, if not illness, might arise. There is reason to believe that the amount of salt required by the system is subject to a fairly accurate control by means of the sense of taste so that we secure a pretty delicate adjustment of the amount needed to season various foods. Following this natural guide, we do not add much salt to meats, as they contain a considerable amount of sodium chloride. On the contrary, every good cook has always followed the rule of adding a considerable amount of salt to vegetables. Only in recent years has this rule been scientifically explained. Vegetables contain large quantities of potash salts which act as poisons. Physical chemistry has taught us that the potash can be expelled by an excess of sodium chloride or common salt.

The modern preservatives are *tasteless*. The consumer has a right to know if they are present in the article he purchases. I cannot see how the verdict of a thousand referee boards can deprive me of the right to eat what I fancy and refuse what I personally consider injurious. No amount of argument that salt, spices and vinegar are injurious can affect the matter. The

first morsel I taste will tell me if these substances are present, and if I have learned by experience that they are injurious to me I can reject the food so treated. Smoke undoubtedly contains matter far more poisonous than benzoate of soda, but smoked foods are instantly recognized, while we must depend on the label for the information that benzoate of soda or any other preservative has been used.

It also seems reasonable to demand that an investigation be made of the effect on children, the aged or infirm, of eating food containing benzoate of soda.

We also need assurance that the methods of handling and preparing foods when benzoate of soda is used are as sanitary as when the preservative is excluded. A great deal of information at hand leads us to conclude that this is not the case.

Under the head of mineral substances, a considerable amount of adulteration is still practiced. Synthetic jellies, composed of glucose, gelatine, aniline dyes, benzoate of soda and sulphuric acid are still manufactured in large quantities. These are largely consumed by the children of the poor. As the taste of the child is seldom discriminating when the article is sweet, the "consumer" in this case makes no complaint except that he does not get enough. The label generally gives the correct formula, thanks to the pure food agitation, but the class to whom these goods are sold do not realize the significance of the formula. There is a powerful influence at work which will gradually remove this ignorance. I refer to the small army of domestic science teachers in our public schools who are quietly giving the rising generation the elements of dietary science. As to what would be the effect on the health of the children of eating liberal quantities of a mixture of glucose, aniline dye, benzoate of soda and sulphuric acid, I am afraid the domestic science teacher would be puzzled for an answer. The scientific investigator has been too busy with other problems and has left the decision to the pitiless struggle for existence and the survival of the fittest and like other explorers, no record of the results has been presented.

Our knowledge of the effect of the consumption of other mineral ingredients is quite indefinite. Large quantities of scrap meat are treated with sodium sulphite and sold in the poorer district. Most of the flour used is bleached with the oxides of nitrogen. Many other incidents can be given of the addition of mineral substances to foods. New processes of preparing foods are being introduced almost daily. The task of determining in each case whether the product is wholesome involves laborious investigations under the best scientific investigation. We cannot entrust this task to the commercial agencies which are financially interested in the result. It must be undertaken and carried out by governmental agencies. This is possible only if such work is demanded by an intelligent public opinion.

## THE WORK THE FEDERAL GOVERNMENT IS DOING FOR THE PROTECTION OF THE PUBLIC HEALTH IN THE ENFORCEMENT OF THE FOOD AND DRUG ACT OF JUNE 30, 1906.\*

By **R. E. DOOLITTLE**

Chief New York Laboratory,  
U. S. Department of Agriculture,

**I** FEEL that I am deeply indebted to your Secretary for the privilege of being present this evening and enjoying with you the able address of Prof. Olsen on the subject of Food Adulteration. You, of course, can realize what a great pleasure it is to one who is actively engaged in the enforcement of the food law to see this display of interest in his line of work. And it means much when a busy professor of one of our leading institutions of learning will devote the time that must have been required in the preparation of an address such as we have just had the pleasure of listening to this evening, and I want to tell you that it is encouraging for the cause of pure food when an association such as yours devotes an entire evening program to this subject.

We all appreciate the fact that every person should be interested in the study of the food that is furnished for the nourishment and maintenance of his own body and brought into his home for the sustenance of those entrusted to his care. But even more is this of importance to the physician upon whom rests to a large extent the health of the community.

I feel, therefore, that you have conferred upon me a great pleasure in inviting me to meet with you this evening to discuss this subject. I feel also that you have a right to call upon a member of our Department to learn just what is being done to protect the public health in the enforcement of the National Food law.

The National Food law, which, by the way, covers drugs as well as foods, is officially known as the Foods and Drug Act, and it was passed by Congress on June 30, 1906, taking effect on the 1st day of January, 1907. But prior to the passage of the Food and Drug Act, Congress had enacted certain laws covering specific products, such as tea, oleomargarine, mixed flours, and had provided for the inspection of all food products imported into this country from foreign nations.

The Bureau of Chemistry of the U. S. Department of Agriculture had in its research work and its enforcement of some of the laws mentioned, made extensive studies of the subject of adulteration of food and drug products, so that when the law was enacted, the Department of Agriculture, which is charged with its enforcement, was well prepared in some ways to take up the work of enforcing the new law. There existed, however, the necessity of securing and organizing a proper working force. The Civil Service Commission was called upon for certifica-

\* Read before the Medical Society of the County of Kings, at Brooklyn, December 21, 1909.

tions of names for inspectors and chemists. Examinations were held and the grade of men that responded for the work was remarkable. Graduates of our highest institutions of learning, physicians of good training and men of broad experience were certified by the Civil Service Commission for the positions of inspectors, and many of the leading food chemists of the country were secured for the laboratories. As a consequence, when the day arrived for the law to go into effect, the Department was ready to begin active work in its enforcement.

To facilitate the work, branch laboratories were established at the principal ports of entry and centers of distribution of food and drug products. To-day there are 21 of these branch laboratories, which, with the Bureau at Washington, have a total working force of about 275 chemists. Inspectors, as secured, were stationed in the various States, until to-day there is an inspector in practically every State of the Union; and many of the States in which are located large centers of commerce, there are two or more inspectors.

Before taking up the discussion of what has been accomplished in the enforcement of the food law, it might be well for us to consider briefly, just what the law is and what it covers. As expressed in its title, the Food and Drug Act is "*An Act for Preventing the Manufacture, Sale, or Transportation of Adulterated or Misbranded or Poisonous or Deleterious Foods, Drugs, Medicines and Liquors, and for Regulating the Traffic Therein, and for Other Purposes.*"

It should be remembered that the National Government has jurisdiction only over interstate commerce, commerce with foreign nations and the government of the territories and the District of Columbia, so that the National Food and Drugs Act applies only to those products shipped into interstate commerce, or imported into this country from a foreign country, or shipped from this country to another country, or is manufactured or sold in the territories or in the District of Columbia. Or, to put it briefly, the National Pure Food law does not have jurisdiction over products manufactured and sold in the same State. The constitution reserves to the States the right to regulate their own internal commerce.

The Law defines what shall constitute adulteration and misbranding for both foods and drugs. I wish to say here that I do not intend this evening to discuss in any way the subject of drugs or their adulteration and sophistication. I note that Prof. Olsen has not mentioned this subject in his paper. For your information I might state that the adulteration and sophistication that existed in drugs, particularly food drugs, when the National Food and Drug law was enacted, was even greater than in foods. And if there is anything that should be pure, it is the medicine that the physician relies upon to combat

the disease and restore the health of his patients. The subject of drug adulteration is closely allied to the adulteration of foods and fully as important, and I recommend it for your future consideration.

But to return to our subject. The misbranding section of the law, in its application to foods, prohibits false and misleading statements of all kinds. Inasmuch as these refer more particularly to the question of deception than to effect on health, we need not consider them in our discussion this evening.

With reference to adulteration:—By the terms of the Act, a food product is deemed to be adulterated,—

*First.*—If any substance has been mixed and packed with it so as to reduce or lower, or injuriously affect its quality or strength.

*Second.*—If any substance has been substituted wholly or in part for the article.

*Third.*—If any valuable constituent of the article has been wholly or in part abstracted.

*Fourth.*—If it be mixed, colored, powdered, coated or stained in a manner whereby its inferiority or damage is concealed.

*Fifth.*—If it contains any added poisonous or other added ingredient which may render such article injurious to health.

*Sixth.*—If it consists in whole or in part of a filthy, decomposed or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it be the product of a diseased animal, or one that has died otherwise than by slaughter.

*Confectionery* is provided for in a separate paragraph which states that an article shall be deemed to be adulterated if it contains terra alba, barytes, talc, chrome yellow, or other mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt or spirituous liquor or compound or narcotic drug.

In the case of imported foods the Act provides even more stringent requirements than for the domestic products in that it refuses the admission into this country of any product that is adulterated or misbranded within the meaning of the definitions just given, or is of a kind that is forbidden entry into, or forbidden to be sold or restricted in sale in the country in which it is made or from which it is exported, or is otherwise dangerous to the health of the people of the United States. As has already been stated the adulterants which enter into the sophistication of foods are often divided into two groups, in the first of which are placed those which are harmless to health the fraudulent adulterants, while in the second, belong, such substances as are either injurious or positively poisonous to health. Fortunately, the first of these two classes is by far the larger, and you will note that of the six paragraphs defining adulteration, four cover the first

class. But in this connection, I desire to call your attention to the fact that while this form of adulteration does not result in the production of a food that is positively injurious to health, it is not without effect upon the animal economy. There may be no direct injury to the health by the addition of a large percentage of water (provided it is pure water) to milk, or of the substitution of wheat flour and tumeric for mustard, but the body is deprived of certain nourishment that was expected from the food supposedly taken. Thus it is seen that this form of adulteration which is so universal is not without its effect upon the health of man, and when we consider the extent of this form of adulteration, its effect must be far-reaching.

You ask me to tell you what is being done to protect the public health by the enforcement of the Food and Drugs Act. I think I can best answer this by quoting to you the words of the Secretary of Agriculture in his address before the Association of State and National Food Departments at Denver, Col., last August. Secretary Wilson said:

"We have reported 475 cases to the Attorney General for criminal prosecution, and recommended the seizure of 225 consignments of merchandise, aggregating in value \$750,000; fines have been imposed to the amount of \$20,000, excluding costs also assessed against defendants. Many cases recently reported are now pending in the courts. We have inspected more than 170,000 import shipments, and 25,000 samples taken therefrom have been examined and analyzed at the port laboratories. About a thousand shipments have been refused admission and re-exported, and 3,000 shipments have been allowed to enter only after relabeling. Our effort has been to secure substantial compliance with the law with as little friction between the government and manufacturers and dealers, as possible. We have recommended the prosecution of every case based upon a substantial violation of the law; but lenience has been shown in offenses committed when the law was new and when the violation was the result of an honest mistake in interpreting the law. We have issued 100 food inspection decisions, explaining the Department's interpretation of the law. I have directed that no prosecutions be made for alleged violations which are the result of honest mistakes of the offender in interpreting the law. We have inspected the milk supply of St. Louis, Kansas City, Cincinnati and Chicago, and as a result 125 cases have been reported to the Attorney General, based on interstate shipments of impure milk. We have also reported numerous cases of the mislabeling and misbranding of flavoring extracts, vinegar, syrup, buckwheat flour, olive oil, health food flours, mineral waters, headache cures, alleged cancer cures, and various proprietary medicines. A consignment of coffee coated

with lead chromate was seized and destroyed. After a thorough investigation flour bleached with nitrogen peroxide was found to be adulterated under the law. In December, 1908, the conclusions of the Department were announced and the manufacturers and dealers were allowed six months to dispose of stocks on hand. Seizures of these bleached flours have been effected since that period and are being made now."

I might add to the Secretary's statement that the Department has also done considerable work along other lines, as for instance, investigation of the coal-tar dyes, used in the preparation of food products and which has also been referred to by Prof. Olsen. Practically all the coal-tar dyes in use in food products were investigated, and of these seven were found, which when properly prepared were not injurious to health. Standards of purity for these seven colors were fixed, and I can announce that to-day these colors complying in every respect with the standards are to be found upon the markets.

Prof. Olsen has given us a very interesting exposition of the use of chemical preservatives in foods and their effect upon health. This, as you know is one of the difficult problems which confronts the officials who have charge of the enforcement of the law. The Department of Agriculture is having its own difficulties in solving this problem, but I can state that progress is being made. Investigation as to the precise effect upon the health of these various chemicals are being carried on independently by the Bureau of Chemistry, and by the best experts on the subject that the Department is able to obtain. I anticipate that the near future will see a solution of these perplexing problems, and allow me to prophesy that the reputable food manufacturers of the future will no more think of using the chemical preservatives for his products than he would to-day the old discarded sophistications of the past. That a large number of manufacturers do not use these substances and that each year adds to this list bears out my prophecy. The Department is lending its aid to this side of the work by conducting, in the factories and in a practical way, experiments in the preservation of food by sterilization and observance to the rules of sanitary science.

The Department has also investigated the preparation and shipment of oysters, clams and other shell-fish. The beds and packing-houses for these products were visited by the experts of the Department; samples of the fish and of the water were submitted, both to chemical and bacteriological examination, and experiments were carried on to determine the exact effect of "Floating" or drinking oysters. A public hearing was held and the conclusions of the Department have recently been published in a food inspection decision (110).

Another matter which has required consider-



able work on the part of the Department has been the investigations conducted to determine what is whiskey, by reason of certain terms, such as "compound," "blend," "imitation," etc., which appeared in the Act. This question has largely resolved itself into a legal interpretation of certain sections of the law, and as you know, is now under consideration by the President. The Department has, however, investigated the methods of production, and perfected methods of analysis whereby we are able to determine the exact character of the products on the market when called upon to do so.

There are several other questions, such as the glazing of coffee, coating of rice, requirements for admission of foreign meat products which have also been investigated and the necessary rules and regulations governing same formulated.

It is, however, difficult to express satisfactorily in figures or in words what has really been accomplished. You, who have been called upon to give an account of your own work whatever it may be, can well appreciate this. It is not always the number of samples analyzed, or the number of cases successfully prosecuted that represents the best enforced food laws. To us who are actively engaged in this work the results are shown in various ways, such as the elimination from the market of certain products, the change made in the composition and character of products, and the changes made in the labels used to designate the character of the products.

It is not my intention, however, to credit to the enforcement of the National law alone the marked improved condition of our food products of to-day to what they were a few years ago. As you know a great many of the States have stringent food laws enforced by efficient officials and to these is much credit due. It is to the universality of the movement and the enforcement of the laws throughout the entire country that so much has been accomplished during the past few years. What has been accomplished by the enforcement of the pure food laws, was so clearly set forth by President Ladd in his address at the meeting of the Association of the State and National Food Departments that I repeat his statement. Contrasting the conditions that existed a decade ago with those of the present time, President Ladd said:

"Jellies and jams were largely adulterated and misbranded, made from apple stock and waste fruit products, often containing starch paste and mucilage, colored with aniline dyes, preserved with salicylic acid and sweetened with glucose and saccharine, and the whole falsely labeled. Our canned corn, almost without exception was bleached with sulphites, preserved and sweetened with a coal tar product, saccharine. Our peas and string beans frequently contained copper and alum salts and often contained chemical preservatives. Our meats were embalmed with chemicals,

and some of the canned products contained little but gristle, connective tissue and waste matters, seasoned and flavored, but sold as potted chicken, ham, etc. Our Sorghum syrup came largely from glucose factories, while the maple syrup was almost wholly an imitation product worth fifty cents a gallon and retailed at a dollar and a half. Our strained honey was largely flavored syrups and glucose. Our candies were made from glucose containing sulphites, to which further sulphites were added, colored with coal tar colors, many of which were known to be harmful, and flavored with chemicals and synthetic flavors. Our whiskies, brandies and wines most generally sold even in the drug stores, the good Lord only knows what they did contain, but our chemists have shown that they seldom did contain real whiskey. Our cider vinegars were unknown to the apple family. Our spices were but a semblance of the real thing, made as they were, from corn meal, cocoanut shells, olive stones and other waste products. Not a few of our drugs, drug preparations, extracts, etc., contained wood alcohol, known to be a deadly poison. Cereals and chicory were known to be the basis of much ground coffee. Lemon and vanilla extracts were largely imitation products and put up with wood alcohol. Many of the preparations dispensed at the drug store varied from 25 to 150 per cent. of the U. S. P. strength; and fully 75 per cent. of the patent medicines, were fakes, pure and simple.

"But why dwell upon this longer than to show what has been accomplished through the enactment of food laws and their enforcement. To-day the conditions are largely changed. Pure foods, pure drugs of proper strength, and truthful labeling are in a large measure being realized."

The work of the officials charged with the enforcement of the food laws is changing. True, many of the sophistications above cited still exist, particularly in certain sections of the country and it is necessary to keep the entire food supply of the country under surveillance to prevent the recurrence of these forms of adulteration. But the work is going further. It is being put on a more scientific basis and is reaching for the real source of the evil. The States are supplementing their food laws with sanitary laws governing factories wherein articles of food are produced, the manner in which they are transported and the markets where they are offered for sale. Paragraph 6 of section 7, of the Food and Drugs Act, prohibits the sale of an article of food, if it consists in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal, or one that has died otherwise than by slaughter." To provide for

the enforcement of this section the regulations authorize the Secretary:

Reg. 16.

(a) "The Secretary of Agriculture, when he deems its necessary, shall examine the raw materials used in the manufacture of food and drug products, and determine whether any filthy, decomposed or putrid substance is used in their preparation."

Under this regulation a systematic inspection of places where articles of food are prepared or produced for the market is maintained. That this has been of great value in the protection of public health is evidenced by the seizure and destruction by court order of two large consignments of tomato catsup which were proved by inspection of factory and bacteriological examination to be made from factory refuse. In one of our large cities the bottling plant of one of the principal table waters on the market was found in unsanitary condition and the water contaminated with the colon and gas producing bacteria. A large consignment of the goods were seized and destroyed and the plant required to correct its unsanitary conditions. And not only is this line of work being carried out in reference to the domestic products, but through the Government representatives abroad we are obtaining information as to the conditions under which the food products shipped to this country are produced.

Thus the work of the enforcement of the Food and Drugs Act is going on. Perhaps not as much has been accomplished in the three years that the law has been in force as some of its advocates had hoped for, but many obstacles were met that no one could have foreseen, and it takes time with the law of the scope of the National Food law to organize the working force for the enforcement and perfect the same for perfect working order. But I believe I am warranted in saying that withal, good progress has been made.

## THE BOARD OF HEALTH AND THE FOOD SUPPLY OF NEW YORK.\*

By **Mr. J. P. ATKINSON, U.S.**

Chief Chemist, Department of Health.

**T**HE control of the food supply of New York City is directed by the Board of Health, of which the Commissioner of Health, Dr. Thomas Darlington, as you know, is the President. The Board of Health, acting under authority given it by law, has created various ordinances relating to the preservation of the health of the people of New York City and has incorporated them in the Sanitary Code. These ordinances are enforced by the Sanitary Superintendent, Dr. Walter Ben-

sel, and they may all be referred to Section 8 of the Sanitary Code.

Other ordinances particularizing and making specific this general ordinance have been adopted by the Board of Health among which those regulations relating to the foods sold in this city and their enforcement are interesting us this evening.

By "Foods," an used by the Sanitary Code, is meant everything which is consumed by human beings, including all those substances which appeal only to the senses and hence influence the appetite, as well as substances which have a direct nutritive value.

In order to carry out this work successfully the office of the Sanitary Superintendent is organized into divisions as follows for the protection of the food:

Division of Inspection of Foods and Drugs.

Division of Sanitation Inspection.

Division of Chemistry.

Division of Bacteriology.

The division of contagious diseases may also be considered as belonging to this group to a certain extent.

The work of ensuring pure food for the city needs these divisions for the results of dirty surroundings cannot be always recognized by even the most careful chemical analysis.

For example, when an inspector finds meats, milk or vegetables in a decayed or filthy condition he destroys them, but he cannot tell whether or not they contain the organisms of disease that may be transmitted directly by the dealer or the surroundings. Similarly a sample of well water may contain typhoid organisms and yet the water may not be sufficiently polluted to warrant condemnation through a chemical analysis. In such a case, a bacteriological examination is necessary. All these various conditions are considered in the control of New York's Food Supply. Under Mr. Bayard C. Fuller, Chief of the Division of Food and Drug Inspection, all the inspection of food brought to and held for sale in the city of New York is carried out, excepting the inspection of milk, which is under the supervision of Mr. Russell Raynor, Chief Sanitary Inspector.

Mr. Fuller has under him specialists in food inspection such as inspectors of meat and poultry, fish, fruit and fresh vegetables, inspector of general food supplies, such as confectionery, bread stuffs, canned, bottled and preserved foods, condiments, eggs and various kinds of substances hard to classify as coloring matter, flavoring substances, etc.

The meat and poultry, fish, fruit and fresh vegetable inspectors visit the markets and shops, freight stations, steamboat and steamship landings, and in the case of meat, the abattoirs as well.

\* Read before the Medical Society of the County of Kings, at Brooklyn, December 21, 1909.

The fire underwriters' bulletin and reports on marine losses are daily received by Mr. Fuller, who sends his inspectors to investigate the conditions where food supplies are involved.

Where these foods are found to be in a diseased, decayed or in filthy condition, they are ordered destroyed by the inspector with the result that thousands of tons of these food stuffs are yearly destroyed.

STATISTICS.

Twenty-one million pounds of food were destroyed in 1908, the distribution of which is as follows:

Vegetables and fruits . . . . .	65%	} 100%
Meat . . . . .	25%	
Fish . . . . .	5%	
Miscellaneous . . . . .	5%	

This year estimating from the quarterly reports the amount destroyed will not be less than 23,000,000 lbs.

For the quarter ending September 30th, there was destroyed:

Meat . . . . .	570,000 lbs.
Fish . . . . .	180,000 lbs.
Other Foods . . . . .	8,000,000 lbs.

which include fruit and vegetables, eggs, canned and preserved foods, etc.

The number of INSPECTIONS made for the last quarter totalled, for meat 43,240 and for other food substances 119,090.

The number of inspectors available for this enormous work is 31, with a supervising inspector.

There are 20 men assigned to meat and fish. These men, before entering the Department of Health service were butchers and fish dealers. There is a wholesale fish inspector stationed at the Fulton Market, the distributing station for fish for the city, one might say. The other 10 inspectors are assigned to the rest of the food work. This year, to date, 400 arrests have been made and \$5,000 have been paid in fines.

The oyster dealers must now work under a permit and are allowed to sell oysters only from those beds where inspection shows the water to be unpolluted. Formerly the conditions surrounding the "fattening" beds in many cases was to say the least extremely disgusting. These conditions have been stopped so that now one may feel safe in eating raw oysters.

The inspection of milk, and dairy products, canned, bottled and preserved food, coloring matter, flavoring substances, preservatives, etc., must be supplemented by a chemical examination. In many cases an inspector may be very suspicious of adulteration without sufficient proof to destroy, as for instance in the case of imported broken eggs which come in bulk from a foreign port, China or Russia, perhaps. These eggs are

to be used by bakers and are supposed to be kept frozen in cold storage until used. This, however, is helped out sometimes by preservatives such as borax or formaldehyde. An embargo is put on the suspected cans of eggs and a sample is taken to the Chemical Laboratory at the foot of East 16th Street, Manhattan, for examination. If a preservative is found to be present the shippers are refused the privilege of landing their goods, or the goods are seized if already landed. The same method is applied in another example in the case of condensed milk. The law requires that the fat content shall be 25% of the total milk solids and that there shall be no preservative excepting cane sugar present. Not long since a shipment of hundreds of cans of a particular brand of condensed milk was held and the owners forbidden to distribute it pending a chemical examination of sample cans taken at random from a number of cases.

It would be easy to multiply such examples many times over, but these two will serve as types for all. There are of course many samples examined which have been bought by the inspectors in the shops that do not represent car loads or large shipments, but the seller is held responsible for the quality of the food he sells.

In this respect the City of New York law differs from the National pure food law, for under the National law a retailer honestly ignorant of the adulteration is excused and the adulteration is traced back to the persons responsible for it. But the U. S. Government works under an interstate law, while the City of New York can only work within its own boundaries. If the seller was not held responsible there would be no method whatever of stopping the sale of adulterated foods (by an unprincipled dealer) which were not actually fit for use by the aid of the senses of sight and smell, for he would simply fall back upon his feigned ignorance. A dealer in foods under our city law must take care that what he sells is pure.

The Department of Health also looks after the water supply of the City, both the public supply and the wells and cisterns. The Croton water and the Ridgewood water are examined weekly and the other public supplies of which there are about 40 in the greater city, monthly. The Department of Water Supply gives these public sources of supply its constant attention but occasions have arisen when the collaboration of the Health Department has been very beneficial. (Example of SiCl test.)

EXAMPLE OF SiCl. TEST.

A certain pumping station supplying the public with water in one of the boroughs of this city was suspected of using the water from a stream polluted with sewage to augment its driven well supply. The owners denied this and claimed to use *only* the water from the driven wells for

its mains. A sample of water was taken one day from a house tap supplied by this company as a normal control and then lithium chloride was put into the stream some distance above the suspected intake of the water. As a result of the examination in the Chemical Laboratory by means of the spectroscope it was found that the normal water did not contain lithium but water taken one hour after the introduction of lithium into the stream showed its presence in the tap water, increasing in quantity up to the fifth hour. It is needless to say that the use of the polluted stream was stopped.

A great many wells in New York have been found to be polluted and unfit for use through analysis in the Chemical Laboratory and their use has been discontinued.

The control of the milk supply is begun on the farm before the milking is begun and is continued to the door of the consumer. It is carried through a complete sanitary inspection and chemical analysis.

Although the Department of Health, of course, can only legally enforce inspection within the city, it can actually control the conditions at the source of supply by refusing to permit milk to be sold in the city the history of which is not completely known, and it is by this method that our inspectors go into farms, dairies, creameries and shipping stations of the 6 States supplying New York City with 2,400,000 quarts of milk per day, as well as the railroad terminals in New Jersey.

The Board of Health has from time to time passed regulations governing the production of milk. It insists upon clean, well ventilated barns, a pure water supply, clean dairy apparatus, healthy and clean milkers and of course healthy and clean cows. The milk must be cooled immediately after milking and kept cool (below 50° F.) until delivered to the consumer. It must be delivered as the cow gives it, unchanged in composition, nothing added and nothing taken away. To accomplish this 34 inspectors are at work continually in the country and 24 work in city.

The city's milk comes from 45,000 farms and dairies and is shipped to the city by 800 to 900 creameries. It represents the product of 450,000 cows.

The amount of milk coming daily to the city is estimated at about 2,400,000 quarts. This includes cream and unsweetened condensed milk. To give you an idea of the magnitude of this work allow me to quote the estimated results for 1909 based on the three previous quarters:

No. of inspections of farms and dairies..	53,400
No. of inspections of creameries.....	2,300
No. of inspections of samples of water taken from analysis .....	170
No. of cases of infectious disease investigated and reported .....	625

No. of dairies and farms excluded from sending milk to the city because of non-compliance with the regulations of the New York Health Department.... 160

In the city of New York there are 13,000 stores selling milk and 4,500 wagons. These are controlled by 500 dealers.

There will have been made by the end of the year in the city of New York:

Inspections of milk.....	100,000
Inspections of sanitary conditions where milk is sold .....	15,000
Samples of milk taken for chemical analysis .....	7,200
Samples of milk taken for bacteriological examination .....	5,000
Quarts of milk destroyed .....	17,750
No. of cases of infectious diseases investigated, whether due to milk or not....	336
No. of arrests .....	950
And fines will amount to.....	\$8,000

And there have been several cases of imprisonment.

The sanitary inspection is carried out by men appointed for that duty only. They are assisted by reports from food inspectors, who observe the condition of the shops and markets where they are examining the food supply. If the sanitary conditions are not what they should be the food inspectors make memoranda, to be handed to the sanitary inspectors for investigation. Especial care is taken where milk is sold to protect it from contamination. The cans and dippers and bottles must be clean, the icing must be good and the cans must be protected from dust and dirt. The store must attain a fixed standard of excellence, otherwise a permit to sell milk is refused. The milk inspectors look after these conditions. Candies and other foods exposed for sale in push carts and street stands must be properly protected from dust and dirt. Precautions are taken to protect meats, fish, fruit and vegetables from contamination.

Factories where food is prepared by wholesale, as, for instance, candy manufacturers', are required to furnish proper toilet facilities for their employees, and the employees are required to keep themselves in a clean and sanitary condition upon pain of dismissal.

The Department of Health enforces its regulations by refusal of permits until its orders are complied with, and by the arrest and fining or imprisonment by the court, of persons found guilty of disobedience of the ordinances of the Sanitary Code. This code may be had for the asking by anyone interested in the enforcement of the pure food laws of the city of New York.

In conclusion, let me mention the work of the Chemical Laboratory:

There are five assistant chemists to do the actual analytical work and appear in court as witnesses in the prosecution of cases. The Chem-

ist's time is too well filled up with office work to allow for but little laboratory work.

To average again for the year from the past three-quarters, the total numbers of analyses made in the Chemical Laboratory of food substances will approximate 11,300.

This may be distributed as follows:

Milk, excluding canned condensed milk..	7,200
Water, from all sources .....	780
Other foods .....	3,320

Total ..... 11,300

The time spent in courts testifying as witnesses will amount to 186 days.

It is difficult to do justice to such a big subject in a short time, and I have simply outlined the work of the Health Department of New York city in giving the people of the city pure food.

It is a bigger proposition than anyone can conceive of who is not actually in it.

Gentlemen, I thank you for the privilege and pleasure of putting this subject before you.

### SOME FURTHER CONSIDERATIONS ON THE EMPLOYMENT OF SOLID CARBON DIOXIDE AS A THERA- PEUTIC AGENT.\*

By WILLIAM S. GOTTHEIL, M.D.

NEW YORK CITY.

THE widespread interest shewn in the therapeutic employment of solid carbon dioxide has been entirely justified by the results obtained from its use, more especially on various hitherto intractable affections of the skin. The study of its properties has been attended by a constant extension of its field of usefulness; and my experience has been that no one who has employed it in the proper manner and in suitable cases has been disappointed in its use. It is a routine therapeutic agent in my office as well as in the hospitals and clinics by my assistants. I hear, however, of failures, not so much in therapeutical results as in regard to getting the material in proper and usable form. I have also had the pleasure of a large correspondence from various parts of the country much of which shews that the nature of the agent is not understood. Thus one correspondent writes on the letter-head of a large wholesale drug house to say that he is a medical student, that he cannot get solid CO<sub>2</sub>, and that no one in the business can tell him where to buy it. Another physician writes from the West to say that he has ordered the drug from the pharmacists in his town, and that they in their turn have made extensive

inquiries among the wholesalers, but have been unable to find any one who carries it; would I please order some to be expressed to him from my source of supply, and tell him the price I pay per pound. It is evident, therefore, that some more detailed account of the material and the mode of obtaining it in form suitable for therapeutic employment is in order.

1. *Nature of the Agent*—Carbon dioxide, carbon anhydride, or carbonic acid, CO<sub>2</sub>, occurs in nature in subterranean reservoirs whence it is occasionally set free in springs, volcanoes, etc., forms 3 per 1,000 or so of atmospheric air, and plays a well known and important part in plant and animal life economy. It is a heavy, poisonous gas, colorless, and of an acid reaction; it is unbreathable, and will not support combustion; mixed with air to the extent of 4 or 5 per cent. it is a narcotic poison, and forms the dreaded "choke damp" of the coal mines. It is obtained for use from the inorganic carbonates, especially those of lime and magnesium. It can be liquified by pressure, some 50 to 60 atmospheres being required for the purpose at ordinary temperatures. When cold is employed in addition much less pressure is needed; thus at 0°C. 36 atmospheres suffice. Fluid CO<sub>2</sub> is a colorless transparent liquid which evaporates so quickly in the air that the additional cold thus produced leaves a residue of loose white solid matter which in its turn disappears without liquifying again. The direct change of the solid CO<sub>2</sub> into the gas takes place, however, much more slowly than the evaporation of the fluid; and the temperature of the evaporating solid is about—80°C. Mixed with ether this CO<sub>2</sub> gives a temperature of —110°C; and merely dipping the solid into ether not only lowers the temperature of the mass considerably, but makes it a more efficient freezing agent by facilitating its contact with other bodies.

2. *Source of the Drug*—Carbon dioxide in the form of a compressed gas is now a common commercial product, being extensively used in soda-water fountains to carbonate water, as a source of pressure for beer pumps, and even for such purposes as the inflation of automobile tires. There are a number of factories in New York that supply it, and it can probably be obtained in any large city. From this compressed gas the physician or the pharmacist must prepare the solid material; for this latter, though stable enough for purposes of use, cannot be kept for more than a few hours at the most. We get it here in 20 gallon tanks, which is the size supplied to the soda fountains. There is a smaller size made of copper for automobilists; it looks better in the office; but it contains very little gas, is soon exhausted, and costs very much more than the steel tanks. The tanks can be kept in a cupboard, out of the way. I keep mine

\* Read before the First District Branch of the Medical Society of the State of New York at Middletown, N. Y., October 28, 1909.

in the basement or cellar, drawing the dioxide as required. The gas in the tanks is, of course, under very considerable pressure; but the cylinders are tested to a much higher pressure, and are perfectly safe, so far as I know. They are transportable, and can doubtless be shipped; so that there should be no difficulty in getting a supply anywhere. The price is very low, some 8 cents a gallon; and as a 20-gallon tank suffices for many drawings, the expense of the material is nominal. In the city the tanks are delivered free, and are not charged for; out of town, of course, express charges, etc., would have to be paid.

Being manufactured on a large scale it is not surprising that we have found the tanks by no means uniform. Though supposed all to contain 20 pounds of the gas they vary a good deal in contents. It is impossible to say just how much gas can be drawn from a given tank; sometimes they seem almost inexhaustible; at other times a few drawings seems to empty them; and once or twice I have gotten tanks that contained no gas at all. There are two possible causes for this. Very accurate vent fittings are of course required for a gaseous material under such pressure, and small leakages may occur in tanks that have been long used and repeatedly refilled. The loss would not be noticeable where the dioxide is used commercially in a few days; but where, as in medical use, a tank may stand for weeks or months unemployed, it may be completely emptied. Besides this I suspect that occasionally, from careless office or factory methods, an empty returned tank is sent out again as a full one. It is a good plan to test a tank immediately on its receipt, and to see that it is full and that the valves are tight. It is also well to have a pressure gauge attached to the cylinder, so that the holdings of the tank can be ascertained at any time; this the physician will have to buy himself; but it is not an expensive appliance. It is not necessary to have it at all when the factory is accessible; a new cylinder can be gotten in an hour or two if required. I simply keep two cylinders on hand wherever I use the gas, one that I draw from, and one that has not been tapped. As soon as the first one runs out I order a new one; thus holding a full one always in reserve.

There is a certain amount of water in each cylinder which must be removed before the gas is drawn. If this is not done the formation of rust-stained water ice at a temperature of about  $0^{\circ}$  C., or of a mixture of that with the dioxide results. This material, of course, is useless. A new tank, therefore, must be partially inverted, so that the vent is lower than the body, and the water allowed to drain off before attempting to get the material for therapeutic use. The small amount of gas that is lost in doing this is of no importance.

3. *Drawing the Material*—This is entirely a matter of appropriate and careful technique. Failure may be expected in one's first attempts; but with practice a solid mass of almost any desired size and shape, and of varying hardness and temperature, can be obtained.

The first experimenters simply allowed a stream of the escaping gas to impinge upon the part to be treated, and did not attempt to employ the solid material at all. The process was slow, the temperature was not low, and the congelation not as effective as that obtainable, for instance, from ethyl chloride. Then the gas was permitted to escape in a folded towel, the pressure resulting in the formation of a certain amount of loose carbon dioxide snow. This was placed on the area to be treated, and allowed to evaporate there. It is apparently still the method used in Europe; but it is ineffective inasmuch as congelation is incomplete and transitory, and none of the deeper-reaching effects obtainable by pressure can be gotten; daily applications are made for prolonged periods.

An improvement in technique consisted in the rapid moulding of this snow with the protected fingers into harder masses or by packing it into glass or metal tubes with funnel mouths and a rammer. In this way a fairly hard cylinder of compressed snow is obtained; but the resultant material is not satisfactory. It disappears very rapidly, especially when applied under pressure; but the chief objection to it is that only smaller rod-shaped pieces are obtained, and that larger hard masses that can be kept for some time and that can be cut and shaped to fit uneven or curved surfaces cannot be gotten. Inasmuch as it is desirable to be able to treat as large an area as possible at one time rather than to attack small circular areas at repeated intervals, better methods of obtaining the material in suitable form were desirable.

Attempts were then made to utilize the tank pressure itself to pack the solid dioxide into an ice mass, and with fairly good results. Appliances consisting essentially of sections of gas piping hinged on the side, to be screwed tightly onto the vent, and from which the solid cylinder could be removed by opening the tube, have been devised. A much harder mass is gotten in this way, and in larger cylinders; but their size is still limited to the size of the piping, and larger surfaces cannot be covered; and it is further necessary to wait for some time after drawing the material until it melts sufficiently to be detachable from the metallic tube in which it is contained.

My attention has recently been called to a special apparatus for drawing the ice which has been manufactured by a Western firm. It has an arrangement for the further compression of the material by a hand screw after it is drawn under pressure in a metallic cylinder. The re-

sultant pencils, however, are very small in diameter, and the appliance is extremely expensive. Nothing of the kind is required. By the method that I shall detail solid carbon dioxide can be readily gotten of any degree of hardness even up to excessive brittleness, and of any desired size, so that an area of several square inches can be covered at once if required. And this material is of such consistency that it can be shaved and whittled into any desired shape; it can be made into a long rod as thin or thinner than a slate pencil for the treatment of less accessible areas, as the inside of the auricle or the mouth, or it can be fitted to irregular surfaces like both sides of the bridge of the nose, the malar prominences, the interdigital clefts, etc. Moreover, the material being obtained in large and solid masses, it will last for hours under suitable conditions, and it can be drawn anywhere and taken to where it is to be used. Wrapped in paper and put in the ice box or out of doors in cold weather, it lasts 4 to 6 hours; in a thermos bottle it might last days. No apparatus further than couple of towels and bandages is needed.

The screw cap over the vent having been removed, a towel folded so as to form a cylinder with a hollow the size of the mass required is firmly bandaged onto the vent. There is no limit to the size or shape of the hollow receptacle thus made; I usually have mine twice the thickness of a broomstick in diameter and four or six inches in length, so that I have a good handle to work with. If a large, flat mass is needed the receptacle is shaped accordingly. A piece of chamois skin or blotting paper may be used inside the towel or between its folds; the closer texture facilitates the hard freezing of the outer layers of the mass, but this is not necessary. An important point is the very tight and thorough bandaging of the towel cone to the neck of the vent. As much resistance to the gas pressure as is possible together with a porous material that will allow the ice to freeze up in its interstices is required. The entire appliance is then firmly closed and bound up with another bandage. Improper closure, and especially insufficient bandaging around the vent permits the too rapid escape of the gas and inefficient packing of the ice.

The cylinder is then laid on a chair or table, partially inverted so that the vent is lower than the body of the container, and by means of the key and upper stop cock, the gas is allowed to run into the towel cylinder fairly slowly. There will be some escape of gas and snow under any circumstances; but the less there is the more successful will be the drawing. If there is a large escape at any one point, and this is especially prone to occur around the vent, it must be reinforced with more bandaging. The gradual hardening and getting cold of the bandaged mass shews the filling of the cylinder with the solid material; and the dioxide is frozen solid

in the interstices of the containing towel, chamois, and bandages. There is now a mass of softer solid dioxide contained in a hard resistant envelope of frozen material, and this must be packed into ice. The stop-cock is now opened wider so that gas escapes in a series of short and violent jets; a distinct crackling of the mass shews that solid hard ice has formed. The tank is then closed, the bandage removed, and the solid Dioxide ice is ready for use. It will always be found that the hardest part of the ice cone is that formed at the vent of the cylinder; hence that is the end to be employed when applications of extended time and with pressure are to be made.

4. *Method of Application.*—The solid material is put into the required shape, care being taken to have an inch in length of the mass so moulded, as it disappears rapidly, more especially under pressure, and we are liable to heat an area larger than intended. An assistant to call off the five seconds is desirable to ensure accuracy of timing; but is not necessary if the time-piece is so placed that the operator can glance at it without being distracted from the application.

The length of the applications, the amount of pressure used, the intervals between successive ones, are all factors that vary in the individual cases; and there is some difference between the practice of various operators. Any desired amount of reaction and subsequent effect can be obtained. We can make an application so light and so short that it is followed merely by an erythema, without distinct vesiculation, and with a return to normal in a short time. With a more vigorous and prolonged application there is distinct vesiculation, as from a burn, with the ultimate formation of a very thin layer of scar tissue. With a very energetic application of the ice the entire thickness of the skin can be destroyed.

In an ordinary application of medium intensity, say to an area of not more than a square inch, with moderate pressure and for some 30 seconds, the course of events is as follows: As the ice cone melts down the skin around it swells up slightly, so that when the application is over we have a snow white solid congealed area that is depressed below the skin and is surrounded by an erythematous, hard, raised border. The congealed area rapidly thaws out from the periphery, and in a few minutes it has disappeared. The treated area becomes red and swells up, and in half an hour or so vesiculation is distinct. The bleb is left to dry up of itself; no dressing is applied except when it is necessary to protect the lesion from injury; and in a few days it forms a dry crust.

It has been our custom in the past to permit the crust to be spontaneously detached; and in ordinary cases that take moderately good care of themselves, this will do very well. Recently,

however, I have seen some cases in careless and uncleanly people in which infection occurred under the crust, and suppuration and ulceration took place. This, of course, occasioned an unnecessary amount of tissue destruction, and is undesirable in other ways. I therefore see these cases, especially when the area treated is large, every few days, and remove the scab if it shews signs of infection or if I desire to make another application to the area.

As stated above, the intensity and frequency of the application depends entirely on the nature of the lesion and the result that is aimed at. If it is superficial, as a pigmentary nævus, a port-wine stain, etc., a single application with moderate pressure for some 30 seconds will suffice; and it is usually desirable to wait several weeks, until all the effects have worn off, before deciding as to the necessity of a second application. Such treatment ought to leave no scar tissue at all, or at all events so small and superficial a veil of it that it requires an expert eye and a magnifying glass to detect it. I have frequently removed pigmented and hypertrophic nævi, papillomata, etc., with the result that it was almost impossible a few months later to find their site.

When, however, the tissue to be destroyed is deeper seated, involving the entire skin and possibly the subcutis, as in the various forms of rodent ulcer and epithelioma, senile warts degenerated or not, deeper vascular and hairy nævi, lupus of the erythematous and ordinary varieties, keloid, etc., destruction of most or the whole of the affected skin is needed, and the applications must be made with firmer pressure, for longer times and more frequently. I myself have never exceeded two minutes for a single application, and I have done that in two parts, freezing for 60 seconds, allowing the part to thaw, and repeating the process. Others, however, have more than tripled that time without untoward results; naturally, however, in serious cases such as extensive and deep infiltrating cancers, etc. The reaction and swelling, of course, is much more severe, and the serum exudation is much greater; and the ultimate result is, of course, distinct scar formation.

Besides this there are certain lesions that are either so extensive or so deep-seated that their complete destruction is either impossible, or undesirable, or dangerous. Here the best that can be effected is to cover up or hide them as far as possible; such is the case with extensive subcutaneous telangiectases or cavernous angiomas. By careful repeated applications of the dioxide ice a satisfactory covering veil of connective tissue can be obtained, with a texture hardly distinguishable from that of normal skin, and with as much thickness and contractile power as may be desired. This is in no sense, of course, a curative procedure; and yet it is a cosmetic process by which the more obvious and

to the patient most distressing effects of these lesion can be concealed; and as such it has properly a place in our therapeutics.

5. *Subjective Results*—As the dioxide is used either for the removal of distressing deformities or for the cure of obstinate and dangerous skin affections, the factors of immediate pain or subsequent distress on the patient's part would be of minor importance, and might be mitigated by various locally anæsthetic procedures. As a matter of fact, however, nothing of the kind has even been considered by us. The pain of the procedure is so very slight as to be entirely negligible in almost all cases; and I make this statement not only on the testimony of numerous patients, some of whom have had the application made scores of times, and on that of several of my assistants and a number of medical friends who have had various nævi and moles removed more for experimental than other purpose, but also on what we have observed in infants. It takes from five to ten seconds after the application is begun before the infant begins to cry; then it cries and struggles as it would under any procedure; but the crying soon dies into a whimper when the freezing passes off, and the baby thereafter shews only the evidences of very moderate discomfort. Under ordinary applications the patient is apparently as comfortable as ever half an hour after the freezing; with more extensive and deeper ones it may be more or less fretful and evidently uncomfortable for a day or so. The testimony of adults is to the effect that the pain of the application itself is entirely negligible; that after the thawing there is more or less burning and throbbing, as after a burn; and that after two or three hours there is merely the discomfort incidental to the superficial and localized inflammatory reaction. The pain of the procedure is not much greater than caused by local freezing with the ethyl chloride spray, which is itself used for local anæsthetic purposes. I have yet to meet the first patient who objected to the process on account of the pain or discomfort that it occasioned. The only exceptions that I make to these statements is where the area attached is over a superficial nerve, and especially where the nerve lies between the skin and the bone, as over the supraorbital nerve. Naturally there is greater pain here, and greater caution in exerting counterpressure must be observed.

In treating the mucosæ with the ice the applications must be lighter and shorter, of course in accordance with the thinness and vulnerability of that membrane as compared with the skin. Where there are delicate organs near the area to be treated certain special precautions to limit the effects of the cold must be taken. Thus in treating the lip a layer of dry cotton should be placed between it and the gum; and when the



eyelids are treated the structure should be drawn as far away as possible from the eyeball, and this latter protected in the same way as the gum. It is important that these structures, as well as the protecting cotton, should be dry, since otherwise the moisture in the interstices of the cotton and on the surface will freeze. On areas over superficial nerve trunks the skin should be drawn away as far as possible, and too much counterpressure should be avoided. These are all precautions, however, that will naturally suggest themselves in the different cases.

Healing takes place under the dried scab of exuded serum and destroyed epidermis if it remains aseptic; if it shews signs of beginning infection it must be removed and a boric acid wet dressing or ointment applied. In the great majority of our cases, however, no dressing at all is used.

The ultimate results have in almost every case been eminently satisfactory to the patient. In localized lesions with moderate applications there is practically no scar at all; I have a number of cases in which the site of the former lesion can hardly be found. When there is visible scar tissue it is smooth, superficial and soft to an extent that, I have no hesitation in saying, is not attainable in any other way.

6. *Therapeutic Results*—I should not have ventured on this very minute detailment of the methods of employing solid carbon dioxide had not daily experience convinced me that its use constitutes a very important advance in our treatment of a number of common and usually very intractable affections. I do not hesitate to say that in affections of the skin it has a wider range of usefulness than the X-ray, that it will do more, and with greater certainty. Of course it does not require an elaborate apparatus, and there are no fireworks to affect the patient's and perhaps the doctor's imagination. This is a disadvantage or the reverse, according to our point of view.

I shall not here attempt to detail cases; I have already done so in part elsewhere. I shall simply state that we now use the solid carbon dioxide successfully in birthmarks of every variety and all sizes; in portwine stains and angiomas, superficial and deep in pigmentary, hairy, and hypertrophic congenital deformities of all kinds, and even in the cavernous angiomas. In leucoplakia and precancerous keratoses it has given us better results than any other method; and I know of no way so good to remove the warty and possibly degenerating growths that are not uncommon on the hands of X-ray workers. Rodent ulcer and superficial epithelioma can be apparently cured; and I say "apparently" advisedly, in view of our experiences with radiotherapy in this field. Its effectiveness in deeper

infiltrating cancer of the skin is still subjudice; and the same is true of keloid and lupus vulgaris. It is entirely successful in the removal of senile warts, papillomata, and other smaller tumors of the skin. Gunpowder stains and other imbeddments of foreign matter in the skin can be removed by it. And in lupus erythematosus it is now our method of election.

To use a commercial phrase, this is a large order; and yet I think that it is rather an understatement than an exaggeration of the possibilities of the remedy.

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## PLAGUE AMONG GROUND SQUIRRELS.

By WALTER WYMAN

**I**N the Public Health Reports for August 27, 1909, appears an article on "Plague Among Ground Squirrels in Contra Costa County, California." In 1894 plague began to spread from Central Asia. Since then it has been carried to practically all parts of the world, including the Pacific Coast of the United States, where the disease has appeared in man, in rats, and in ground squirrels. The infection in ground squirrels has so far appeared in Contra Costa and Alameda Counties, California, chiefly in the former, where, up to September 10, 1909, 220 plague-infected squirrels had been found. The Public Health and Marine-Hospital Service is attempting to destroy all the ground squirrels in the involved area, or at least to so reduce them in number that the plague infection among them will die out of its own accord. This article gives a detailed account of plague infection among the ground squirrels in Contra Costa County, and the relation of squirrel plague to plague in man. It also describes the means employed for the destruction of the squirrels, and gives a serial list of infected squirrels, with the location where found.

The article has been reprinted, and a limited edition is available for distribution to those interested. Requests for copies should be made to the Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C.—*From the Office of the Surgeon General. P. H. & M. H. S.*

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X-ray photographs show that a physiologic sphincter divides the stomach into a cardiac and pyloric compartment which, for the most part, act independently. During digestion the cardiac portion is sac shaped while the pyloric end is tubular. The opening for a gastro-enterostomy should be at the pylorus. When there is no pyloric obstruction it is very doubtful whether food will pass more readily through the pylorus or the lateral opening.—Gray, *Lancet*. 1908, Vol. 2, No. 4.

MEDICAL SOCIETY OF THE STATE OF  
NEW YORK.17 West 43d Street, New York City,  
January 10, 1910.

The regular Annual Meeting of the House of Delegates of the Medical Society of the State of New York will be held on January 24, 1910, at 8.30 P. M., in the Common Council Chamber, City Hall, corner Maiden Lane and Eagle Street, Albany, N. Y.

CHARLES G. STOCKTON, *President*.  
WISNER R. TOWNSEND, *Secretary*.

January 10, 1910.

The One Hundred and Fourth Annual Meeting of the Medical Society of the State of New York will be held on January 25, 1910, at 11 A. M., in the Common Council Chamber, City Hall, corner of Maiden Lane and Eagle Street, Albany, N. Y.

CHARLES G. STOCKTON, *President*.  
WISNER R. TOWNSEND, *Secretary*.

## NOTICE.

The Committee on the Pharmacopœia appointed at the last annual meeting has arranged for a conference of the Committee with medical teachers and others who are interested in the subject on Monday, January 24, 1910, at 4 P. M., in the Supervisors' room, City Hall, Albany, N. Y.

ELI H. LONG, *Chairman*.

## CORRESPONDENCE.

BUFFALO, N. Y., December 10, 1909.

*Dr. A. T. Bristow, Editor New York State Journal of Medicine, New York City:*

DEAR DOCTOR:—The Committee on U. S. Pharmacopœia, appointed at the last annual meeting of the State Medical Society, desires to announce in the January number of the JOURNAL that all communications intended for its consideration should be sent to the Committee before January 20th, so as to receive proper attention before the annual meeting of the Society. Also, that the Committee will meet in conference with medical teachers and others who are interested in the coming revision of the Pharmacopœia, in Albany, on Monday, January 24th, at 4 P. M., exact meeting place to be announced in the program.

If you care to call attention editorially to the importance of the matter, we shall be pleased to have you do so. While the standard character of the book will not permit of many radical changes in any one revision, we ought to study possible improvements and advocate the same at the approaching Pharmacopœial Convention. One improvement that we should insist strongly upon, in my opinion, is the elimination of quite a number of drugs, probably fifty, that are nearly obsolete. Ten years ago our Committee collected opinions upon this point among others, as the enclosed will show. Our Society went upon record in the resolution enclosed, but it is no longer necessary to advocate the move it proposed, since the A. M. A. is doing the work through its Council of Pharmacy and Chemistry.

Our Committee will welcome any suggestions, and hopes that teachers and others will meet in the Conference on January 24th.

Very truly yours,

ELI H. LONG, *Chairman*,  
1335 Main Street.

P. S.—My associates on the Committee are:

S. W. S. TOMS, Nyack,  
WALTER A. BASTEDO, New York City.

## MEETING OF THE COUNCIL.

A regular Meeting of the Council of the Medical Society of the State of New York was held at the Fort Orange Club, Albany, N. Y., on Saturday, December 4, 1909, at 8.45 P. M.

Dr. C. G. Stockton, President, in the Chair. Dr. Wisner R. Townsend, Secretary.

Present: Drs. C. G. Stockton, C. E. Townsend, E. H. Bartley, D. C. Moriarta, Alexander Lambert, E. E. Snow, J. L. Archambault, G. D. Gregor, W. J. Nellis and Wisner R. Townsend.

The Secretary presented the following letter from Mr. James Taylor Lewis. Dr. Nellis moved, Dr. Snow seconded and it was duly carried, that the letter be spread in full upon the minutes.

November 17, 1909.

Medical Society of the State of New York,

Dr. Wisner R. Townsend, Secretary,  
17 West 43d Street, New York.

MY DEAR DOCTOR:—Your request for an opinion as to whether or not, under the provisions of Chapter 213 of the Laws of 1909, the time and place for holding the annual meeting of the State Society could be changed before 1912, is received.

In my opinion it could. This Chapter of the State Law went into effect on the 19th of April, 1909.

If, at the regular meeting in January, 1910, at Albany, notice is given of the intention of the Society to change the time and place of its next succeeding meeting, then the 1911 annual meeting can be legally held at such time and in such place as may be "more convenient," provided two-thirds of all the members of the House of Delegates present at the meeting vote in favor of the change. The bill provides for an entry in the minutes of such notice, and of the vote taken upon a motion.

The amendment to the By-laws proposed in 1909, relative to the change of time of meeting, was authorized by Chapter 5 of the Laws of 1876, and when this amendment comes up for passage at the next annual meeting, it should be amended to conform to the provisions of Section 1, Chapter 213, of the laws of 1909.

After that amendment is adopted, then should follow the introduction of the resolution giving notice of the change of place and day, which resolution may or may not, of course, be carried.

Very respectfully yours,

(Signed) JAMES TAYLOR LEWIS,  
Counsel.

A communication from Medical Society of the County of Erie was read, relative to local counsel for the State Society, and the Secretary instructed to reply that it was not considered desirable to appoint the same.

The amendments to the By-Laws of the Medical Society of the County of Westchester permitting amendment of By-Laws on a two months' instead of a one year's notice, was referred to the Committee on By-Laws and by them back to the Council, and upon motion of Dr. Snow, seconded by Dr. C. E. Townsend, duly approved.

Dr. Snow moved, Dr. Moriarta seconded and it was duly carried, that all pharmaceutical preparations not approved by the Council on Pharmacy and Chemistry of the A. M. A. shall be excluded from the commercial exhibit at the coming annual meeting of the State Society.

Dr. Gregor moved, Dr. Nellis seconded and it was duly carried, that the Secretary prepare the annual report of the Council to be submitted to the House of Delegates.

Dr. Snow moved, Dr. Lambert seconded and it was duly carried, that in view of the fact that the Secretary is subject to personal expense outside of provisions hitherto made for the work done for the Society throughout the State, the salary be fixed at \$500 per annum, including the year 1909.

Dr. Neuman presented the report of the Committee on Program and after the discussion of the same Dr. Nellis moved, Dr. Neuman seconded and it was duly carried, that a reconsideration be made of the motion passed at the last meeting of the Council, which provided for a three days' session.

Dr. Moriarta moved, Dr. Bartley seconded and it was duly carried, that the resolution passed in May, be amended to read that the meeting of 1910 adjourn at the close of the session on Wednesday. The original motion as amended was then moved, seconded and carried.

Dr. Nellis reported progress for the Committee on Arrangements.

Dr. Moriarta moved, Dr. Bartley seconded and it was duly carried, that the Committee on Public Health be requested to prepare and present a resolution to the next meeting of the House of Delegates in conformity with the action of the A. M. A. at Atlantic City, in 1909, in regard to the amending of the National Food and Drugs Act.

Meeting then adjourned.

WISNER R. TOWNSEND, *Secretary*.

### ANNOUNCEMENT.

The Council of The New York Academy of Medicine desires to announce that the income of the Edward M. Gibbs fund, amounting to five hundred dollars a year, will be granted for a period of years to any qualified worker to be selected by the Council from those who may apply for its use in research in the clinical, pathological or chemical problems of Diseases of the Kidneys. Applications stating the qualifications of the applicant and the topic which he proposes to pursue should be sent to the Secretary of the Council of The New York Academy of Medicine, 17 West 43d Street, New York City, N. Y. (Signed)

JAMES EWING,  
GEORGE E BREWER,  
W. GILMAN THOMPSON, *Chairman*.

### NOTICE.

Among the advantages of membership in the Medical Society of the State of New York is that members may take books from the library of the Medical Society of the County of Kings for a period of two weeks, with the privilege of renewal for another two weeks upon request. The borrower may call for books or they will be sent by express, he paying expressage both ways. This arrangement has now been in effect four years, and the Kings County library always desires that it shall be taken advantage of. It applies not only to the books which are the property of the State Society, but also to the whole library of 65,000 volumes. This library desires also to aid members of the State Society with library reference work, and is always ready to respond with any help that is in its power. The members who are taking advantage of these facilities have been gladly served, and it is to be hoped that no hesitancy will be felt by others in applying for books or other help. It is the desire of the library management to make its organized system of as much use as possible to the general profession of the State.

### ITEM.

Dr. William J. Robinson, Editor of the *Critic and Guide*, *American Journal of Urology* and *Therapeutic Medicine*, has purchased the *Chicago Clinic* and has consolidated it with *Therapeutic Medicine*.

## COUNTY SOCIETIES.

### FIRST DISTRICT BRANCH.

ANNUAL MEETING, MIDDLETOWN, N. Y.,  
OCTOBER 28, 1909.

The meeting was called to order by the President, Dr. C. E. Townsend, at 2 P. M.

The following officers were elected for 1910: President—J. D. Mills, Middletown; Vice-President—W. S. Gleason, Newburgh; Secretary—C. E. Denison, New York; Treasurer—J. E. Sadlier, Poughkeepsie.

#### SCIENTIFIC SESSION.

"Indifference of the Medical Profession in Attendance at Medical Society Meetings," C. E. Townsend, Newburgh.

"Has Our Therapeutic Knowledge Kept Pace with the Advancement of Other Branches of Medical Science," C. W. Dennis, Goshen.

Discussion by Dr. A. V. Jova.

"Neurasthenia," F. H. Greene, Poughkeepsie.

Discussion by H. L. Winters, of Cornwall, L. D. Washburn, and Mary E. Dunning, of Newburgh. Newburgh.

"The Application of Anthropometry to Neurologic Practice," H. L. Winters, Cornwall.

"Further Observations on the Use of Solid Carbon Dioxide in Nævus, Epithelioma, Leupus, Ecthymatosis, etc.," W. S. Gottheil, New York.

"The Treatment of Pelvic Infections with Special Reference to Bacterial Vaccines," F. R. Oastler, New York.

Discussion by LeR. Broun of New York, and G. W. Shirk of Cornwall.

"Lactic Acid and Lactic Acid Bacilli," W. S. Gleason, Newburgh.

"Anæsthetics and Anæsthesia," R. Cordner, Middle-town.

Discussion by LeR. Broun of New York, and J. E. Sadlier of Poughkeepsie.

"Acute Diffuse Suppurative Peritonitis," J. E. Sadlier, Poughkeepsie.

### CORTLAND COUNTY MEDICAL SOCIETY.

ANNUAL MEETING, CORTLAND, DECEMBER 17, 1909.

The following officers were elected for 1910: President—B. R. Parsons, Marathon; Vice-President—E. A. Didama, Cortland; Secretary—R. P. Higgins, Cortland; Treasurer—F. S. Jennings, Cortland; Censors—H. T. Dana, C. D. VerNooy, F. D. Reese, P. M. Neary and S. J. Sornberger.

Delegate to State Society—R. P. Higgins.

### RICHMOND COUNTY MEDICAL SOCIETY.

ANNUAL MEETING, DECEMBER 8, 1909.

The following officers were elected for 1910: President—Walker Washington, Tottenville; Vice-President—Frederick Coonley, W. New Brighton; Secretary—Treasurer—John D. Lucey, Stapleton; Censors—H. W. Patterson, H. C. Johnston and C. E. Pearson.

Delegate to State Society—J. B. L'Hommedieu.

### MEDICAL SOCIETY OF THE COUNTY OF TIOGA.

ANNUAL MEETING, DECEMBER 7, 1909.

The following officers were elected for the ensuing year: President—Leon S. Betowski, Waverly; Vice-President—D. S. Anderson, Owego; Secretary—Eugene E. Bauer, Owego; Treasurer—J. M. Barrett, Owego; Censors—H. T. Dunbar, R. D. Eastman and W. E. Johnson.

Delegate to State Society—H. T. Dunbar.

Alternate—W. A. Moulton.

MEDICAL SOCIETY OF THE COUNTY OF  
ALBANY.

REGULAR MEETING, ALBANY MEDICAL COLLEGE, NOVEMBER  
24, 1909.

SCIENTIFIC SESSION.

"Obstetric Complications," arranged by J. L. Archambault, Cohoes.

"Ante- and Post-Partum Hemorrhages," H. J. Lipps, Albany.

"Puerperal Insanity," J. M. Mosher, Albany.

"Treatment of Puerperal Eclampsia. A Contribution to the Use of Veratrum Viride," J. L. Archambault, Cohoes.

Discussion opened by I. P. Boyd.

THE OTSEGO COUNTY MEDICAL SOCIETY.

ANNUAL MEETING, ONEONTA, N. Y., DECEMBER 14, 1909.

The following officers were elected for 1910: President—Henry W. Boorn, Schenevus; Vice-President—George C. Schoolcraft, Hartwick; Secretary—Julian C. Smith, Oneonta; Treasurer—Frank L. Winsor, Laurens; Censor—B. W. Dewar, Cooperstown.

SCIENTIFIC SESSION.

"County Care and Control of Cases of Tuberculosis," D. H. Davis, East Worcester.

"Cause, Diagnosis and Treatment of Suppurative Otitis Media," A. H. Brownell, Oneonta.

"Etiology and Symptomatology of Diseases of the Kidney," J. C. Smith, Oneonta.

"Treatment," R. W. Ford, Otsego.

MEDICAL SOCIETY OF THE COUNTY OF  
ALLEGHANY.

ANNUAL MEETING, DECEMBER 21, 1909.

President's Address.

"Diagnosis of Cardiac Affections," A. M. Loope, Wellsburg.

"A Foreign Body in the Abdominal Cavity," R. G. Loope, Elmira.

"Appendicitis," Charles Haase, Elmira.

MEDICAL SOCIETY OF THE COUNTY OF  
WYOMING.

ANNUAL MEETING, WARSAW, N. Y., OCTOBER 12, 1909.

The following officers were elected for 1910: President—Z. G. Truesdell, Warsaw; Vice-President—P. S. Goodwin, Perry; Secretary-Treasurer—L. H. Humphrey, Silver Springs; Censors—G. S. Skiff, M. J. Wilson and M. T. Greene.

Delegate to State Society—A. C. Way.

SCIENTIFIC SESSION.

"Movable Kidney," C. R. Barber, Rochester.

"Progress of Medicine during the Year," J. S. Wright, Perry.

CAYUGA COUNTY MEDICAL SOCIETY.

ANNUAL MEETING, CITY CLUB, AUBURN,

NOVEMBER 11, 1909.

President—F. A. Lewis, Auburn; Vice-President—H. E. Burdick, Montezuma; Secretary—D. F. Armstrong, Auburn; Treasurer—F. D. Putnam, Auburn; Censors—S. E. Austin, W. H. Coe, M. LeR. Seccomb, B. K. Hoxsie, Jr., and J. H. Witbeck.

An Address on "The Medical Profession," was given by the retiring President, Dr. W. D. Cuddeback.

MEDICAL SOCIETY OF THE COUNTY  
ORLEANS.

ANNUAL MEETING, OCTOBER 5, 1909.

The following officers were elected for 1910: President—C. E. Fairman, Lyndonville; Vice-President—F.

B. Storer, Holley; Secretary-Treasurer—R. E. Brodie, Albion; Censors—E. Munson, G. Post and J. Dugan.

Delegate to State Society—E. Munson.

Alternate—C. E. Fairman.

THE MEDICAL SOCIETY OF THE COUNTY OF  
ROCKLAND.

ANNUAL MEETING, NEW CITY, N. Y., DECEMBER 1, 1909.

I, 1909.

The following officers were elected for the ensuing year: President—E. H. Maynard, Nyack; Vice-President—A. O. Bogert, Spring Valley; Secretary—Richard Slee, Nanuet; Treasurer—A. K. Doig, Nyack; Censors—G. F. Blauvelt, J. Sengstacken, W. R. Sitler, R. DeBaun and J. H. Crosby.

The following committees were appointed for 1910: Committee on Legislation—C. D. Kline, M. J. Sanford and M. J. Sullivan. Committee on Public Health—G. F. Blauvelt, J. C. Dingman and J. H. Crosby.

Suitable resolutions were adopted, expressing the sympathy of the Society for the family of the late Dr. Samuel S. Carter, of Haverstraw.

The scientific session consisted of reports of surgical cases by S. Demarest, G. F. Blauvelt and G. A. Leitner.

SUFFOLK COUNTY MEDICAL SOCIETY.

ANNUAL MEETING, RIVERHEAD, N. Y., OCTOBER 28, 1909.

The following officers were elected for the ensuing year: President—Marcus B. Heyman, Central Islip; Vice-President—S. Bushby Allen, Riverhead; Secretary—Frank Overton, Patchogue; Treasurer—Barton D. Skinner, Greenport; Censors—E. S. Moore, P. V. B. Fowler and C. E. Wells.

SCIENTIFIC SESSION.

President's Address, M. B. Heyman, Central Islip.

"Sanitary Investigations of Oyster Production and Distribution and Their Significance," H. D. Pease, New York City.

"The Proper Attitude of the General Practitioner Toward the Venereal Diseases—Their Diagnosis and Treatment," A. L. Wolbarst, New York City.

MEDICAL SOCIETY OF THE COUNTY OF  
ERIE.

REGULAR MEETING, Y. M. C. A. BUILDING, BUFFALO,  
OCTOBER 18, 1909.

The meeting was called to order by the President, Dr. C. A. Wall at 8.45 P. M.

Dr. Gram, Secretary, being absent, Dr. Lytle was appointed Secretary pro tem.

Twenty-four new members were elected.

On motion, the reading of the minutes of the last regular meeting was dispensed with, inasmuch as such minutes had been published.

Minutes of the meetings of the Council held July 14th, September 21st, October 4th, October 15th and October 18th, 1909, were read and made a part of these minutes.

Dr. Grosvenor moved to amend by adding "except that so much of the minutes of the Council of October 4th as relates to a Special Committee on Professional Relations be laid on the table." The amendment was lost. The following are the amendments contained in the minutes of the Council meetings of October 4th and 18th, 1909, and adopted by the approval of such minutes at this meeting:

"STANDING RULES OF THE SOCIETY."

1. The President shall appoint a Special Committee on Necrology whose duty it shall be to report, at the annual meeting, upon all members dying during the year.

2. The President may appoint a Special Committee on Professional Relations, whose duty it shall be to report to him and act only under his personal supervision.

3. Special Committees on Program and on Entertainment may be chosen by the Council, to report to them.

4. The President shall designate a member of the Board of Censors or of any Standing Committee, as Acting Chairman with full power, at any time the duly elected chairman is unable to act.

5. Unless otherwise directed, all reports of Officers, Censors and Standing Committees shall be submitted to the Council before being presented to the Society.

6. A Special Committee on Publicity may be appointed by the President, which shall be under the direction of and shall report to the Council.

7. The Council shall report at each regular meeting as well as at the annual meeting.

AMENDMENTS TO BY-LAWS.

CHAPTER XII.

Section 4. Honorary Permanent Members shall have regular dues and assessments paid by the Society.

CHAPTER XIII.

Section 2. Standing rules may be made or changed at any regular meeting by a two-thirds vote, provided twenty members are present.

The Scientific Program was as follows:

"Otitis Media in Infants," J. F. Plummer, Buffalo.

"Surgical Tuberculosis," W. W. Plummer, Buffalo.

"Late Tendencies in the Treatment of Surgical Tuberculosis," P. LeBreton, Buffalo.

"Commercialism in Medicine," J. V. Woodruff, Buffalo.

A collation followed at which sixty members were present.

MEDICAL SOCIETY OF THE COUNTY OF OSWEGO.

REGULAR MEETING, OSWEGO, N. Y., NOVEMBER 16, 1909.

The following officers were elected for 1910: President—E. J. Cusack, Fulton; Vice-President—E. W. Crispell, Williamstown; Secretary—William C. Todt, Oswego; Treasurer—Charles J. Bacon, Fulton; Censors—J. K. Stockwell, S. A. Russell, F. E. Fox, LeR. F. Hollis and H. P. Marsh.

SCIENTIFIC SESSION.

President's Address: "A Liberal Medical Education," P. M. Dowd, Oswego.

"Some Diseases of Children," J. L. More, Pulaski.

"An Army Surgeon in the Philippines," R. M. Culler, U. S. A.

a. "An Interesting Case of Fracture of the Femur";  
b. "Pneumonia, Pleurisy and Mediastinal Abscess," H. P. Marsh, Fulton.

"The Department and the General Practitioner," W. A. Howe, Director Division Communicable Diseases, State Department of Health, Ogdensburg.

"Acute Poliomyelitis," W. Grant Cooper.

MEDICAL SOCIETY OF THE COUNTY OF WESTCHESTER.

ANNUAL MEETING, WHITE PLAINS,  
NOVEMBER 16, 1909.

The following officers were elected for the ensuing year: President—G. A. Peck, New Rochelle; Vice-President—J. F. Black, White Plains; Secretary—W. D. Robertson, Mt. Vernon; Treasurer—S. B. Pray, New Rochelle; Censors—W. A. Miner, C. P. Byington and H. B. Brown.

Delegates to State Society—T. F. Goodwin, F. E. Lettice and W. N. Boynton.

A letter from Dr. John L. Heffron, Chairman, Committee on Public Health of the State Society, asking for information from the Society, was referred to Dr. Getty, Chairman, Committee on Public Health of the Westchester County Society.

MEDICAL SOCIETY OF THE COUNTY OF ULSTER.

ANNUAL MEETING, KINGSTON, N. Y., DECEMBER 7, 1909.

The following officers were elected for 1910: President—Thomas O. Keator, Accord; Vice-President—Daniel Connelly, Kingston; Secretary—Mary Gage-Day, Kingston; Treasurer—Aden C. Gates, Kingston; Censors—A. H. Mambert, M. O'Meara, E. DuB. Loughran, L. Emerick, F. Snyder.

Delegate to State Society—H. Van Hoevenberg.

Alternate—A. H. Palmer.

Delegate to Third District Branch—F. Keator.

Alternate—L. K. Stelle.

Committee on Legislation—E. E. Norwood, A. S. Vrooman and J. S. Robinson.

Committee on Public Health—G. H. Van Gaasbeek, W. D. Hasbrouck and W. J. O'Leary.

SCIENTIFIC SESSION.

Annual Address, Thos O. Keator.

"Postural Treatment to Prevent Vomiting Following Anesthesias," Geo. F. Chandler.

"Proprietary Medication," A. H. Mambert.

The first toast of the evening was given by the president, Dr. Thomas O. Keator, and other speeches followed by Dr. David Flynn, medical sanitary expert for the City of New York; Dr. L. K. Stelle, Dr. Frank Keator, Dr. E. E. Norwood, Dr. Stern, and Dr. Gage-Day, who told of the passing of the resolution by the supervisors, appropriating \$6,000 for the completion and maintenance of the tuberculosis hospital. A unanimous vote of thanks was given Dr. Gage-Day for her work in connection with the tuberculosis movement, to Drs. Chandler and Mambert for their excellent papers, to Dr. Thomas Keator for his services as president the past year, and for his splendid address.

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

REGULAR MEETING, ST. PETER'S PARISH HOUSE, NOVEMBER 10, 1909.

SCIENTIFIC SESSION.

"The Application of Electricity in Medicine," arranged by A. Holding, Albany.

"Electrical Treatments," H. M. Imboden, Clifton Spring.

"The Roentgen Rays in Diagnosis," L. G. Cole, New York.

"Radiotherapy," H. W. Van Allen, Springfield, Mass. Discussion opened by Drs. S. B. Ward, C. A. MacMinn, T. A. Hull, E. A. Bartlett, W. H. Happel, W. G. Lewi and A. F. Holding.

LEGISLATIVE NOTES.

The Committee on Legislation herewith presents the list of members of the Senate and Assembly for the year 1910. Members of the Society can refer to this list at any time that it may seem advisable to write to their Assemblymen or Senators in regard to legislative matters and all are requested to look it over so that if among those represented there are any men known to them personally they can write them, if requested by the Committee on Legislation to assist or oppose any bills before the Legislature.

In the next issue of the Journal it is hoped to be able to print the Committees, which had not been appointed when this issue went to press.

Horace White, Lieutenant-Governor and President of the Senate, Albany. Home Post Office, Syracuse.

L. B. Gleason, Clerk, Delhi.

## SENATORS.

1. Orlando Hubbs, R., Central Islip.
2. Dennis J. Harte, D., Long Island City, 35 Stevens St.

## BROOKLYN.

3. Thomas H. Cullen, D., 256 President Street.
4. Reuben L. Gledhill, R., 833 Willoughby Ave.
5. Barth S. Cronin, D., 573 Clinton Street.
6. Eugene M. Travis, R., 146 Quincy Street.
8. Alvah W. Burlingame, Jr., R., 79 Hancock St.
9. John Kissell, R., 281 Wallabout Street.
10. Charles Alt, R., 282 Wyona Street.

## NEW YORK CITY.

11. Christopher D. Sullivan, D., 8 Rutgers Street.
12. Timothy D. Sullivan, D., 58 E. 4th Street.
13. William A. Caffrey, D., 25 Renwick Street.
14. Thomas F. Grady, D., 151 E. 30th Street.
15. Thomas J. McManus, D., 452 W. 49th Street.
16. Robert F. Wagner, D., 1297 Lexington Avenue.
17. George B. Agnew, R., 9 West 56th Street.
18. Alexander Brough, R., 234 W. 103d Street.
19. Josiah T. Newcomb, R., 28 St. Nicholas Place.
20. James J. Frawley, D., 180 E. 95th Street.
21. Stephen J. Stilwell, D., 3311 Olinville Ave., Bronx.
22. George M. S. Schulz, D., 38 Park Row.

## STATE.

23. Howard R. Bayne, D., St. Mark's Place, New Brighton, S. I.
24. J. M. Wainwright, R., Rye.
25. John B. Rose, R., Roseton.
26. John F. Schlosser, R., Fishkill Landing.
27. John N. Cordts, R., Kingston.
28. William J. Grattan, R., Cohoes, 192 Mohawk St.
29. Victor M. Allen, R., Troy.
30. Edgar T. Brackett, R., Saratoga Springs.
31. William A. Gardner, D., Amsterdam.
32. Seth G. Heacock, R., Ilion.
33. James A. Emerson, R., Warrensburg.
34. Herbert P. Coats, R., Saranac Lake.
35. George H. Cobb, R., Watertown.
36. Frederick M. Davenport, R., Clinton.
37. Jotham P. Allds, R., Norwich.
38. Hendrick S. Holden, R., Syracuse.
39. Harvey D. Hinman, R., Binghamton.
40. Charles J. Hewitt, R., Locke.
41. Benn Conger, R., Groton.
43. Frank C. Platt, R., Painted Post.
44. George H. Witter, R., Wellsville.
45. George L. Meade, R., Rochester, 337 University Ave.
46. Charles J. White, R., Brockport.
47. James P. Mackenzie, R., North Tonawanda.
48. Henry W. Hill, R., Buffalo, 471 Linwood Avenue.
49. Samuel J. Ramsperger, D., Buffalo, 232 Emslie St.
50. George A. Davis, R., Buffalo, 936 Ellicott Square.
51. Charles M. Hamilton, R., Ripley.

## ASSEMBLY.

## ALBANY.

1. Harold J. Hinman, R., 81 Chapel Street, Albany.
2. \*William E. Nolan, R., 149 Broadway, Albany.
3. \*Robert B. Waters, R., Green Island.

## ALLEGANY.

\*Jesse S. Phillips, R., Andover.

## BROOME.

\*Harry C. Perkins, R., Binghamton.

## CATTARAGUS.

\*Ellsworth J. Cheney, R., Sandusky.

## CAYUGA.

\*William B. Reed, R., Sterling.

## CHAUTAQUA.

1. \*Augustus F. Allen, R., Jamestown.
2. \*John L. Sullivan, R., Dunkirk.

## CHEMUNG.

\*Seymour Lowman, R., Elmira.

## CHENANGO.

Walter A. Shephardson, R., Norwich.

## CLINTON.

John B. Trombly, D., Altona.

## COLUMBIA.

\*Albert S. Callan, R., Valatie.

## CORTLAND.

\*Charles F. Brown, R., Cortland.

## DELAWARE.

James R. Stevenson, D., Hobart.

## DUTCHESS.

1. \*Myron T. Smith, R., Millbrook.
2. Lewis Stuyvesant Chanler, D., Barrytown.

## ERIE.

1. \*Orson J. Weimert, R., Buffalo, 910 D. S. Morgan Building.
2. Lafay. C. Wilkie, R., Buffalo, 920 Mutual Life Bldg.
3. George Arnold, R., Buffalo, 202 Brisbane Bldg.
- \*Leo. J. Neupert, D., Buffalo, 424 Main Street.
4. \*Edward D. Jackson, D., Buffalo, 304 Smith St.
5. Richard F. Hearn, D., Buffalo, 365 So. Division St.
6. \*James M. Rogan, D., Buffalo, 496 Fillmore Ave.
7. \*Gottfried H. Wende, D., Buffalo, 110 Erie Co. Bank Building.
8. \*Clarence MacGregor, R., Buffalo, 690 Ellicott Sq.
9. \*Frank B. Thorn, R., Orchard Park.

## ESSEX.

\*James Shea, R., Lake Placid.

## FRANKLIN.

Alexander McDonald, R., St. Regis Falls.

## FULTON &amp; HAMILTON.

Edward Vosburgh, R., Vails Mills.

## GENESSEE.

Edward M. Crocker, D., Bergen.

## GREENE.

J. Lewis Patrie, D., Catskill.

## HERKIMER.

George S. Eveleth, R., Little Falls.

## JEFFERSON.

1. Luther S. Pitkin, R., Lorraine.
  2. \*Gary H. Wood, R., Antwerp.
- KINGS (BROOKLYN).
1. \*Henry S. Goodspeed, R., 36 Clark Street.
  2. \*William J. Gillen, D., 12 Vanderbilt Avenue.
  3. \*Michael A. O'Neil, D., 12 Luqueer Street.
  4. \*George W. Brown, R., 266 Hewes Street.
  5. \*Charles J. Weber, R., 775 Hancock Street.
  6. John H. Gerken, D., 28 Vernon Avenue.
  7. Daniel F. Farrell, D., 378 17th Street.
  8. \*John J. McKeon, D., 413 Smith Street.
  9. Edmund O'Connor, D., 426 79th Street.
  10. Charles Harwood, D., 170 Prospect Place.
  11. \*William W. Colne, R., 11 Irving Place.
  12. \*George A. Green, R., 360a Fifth Street.
  13. \*John H. Donnelly, D., 448 Humboldt Street.
  14. \*James E. Fay, D., 82 Franklin Street.
  15. John J. O'Neil, D., 53 Diamond Street.
  16. \*Robert H. Clarke, R., 2638 East 18th Street.
  17. Edward A. Ebbets, R., 348 Jefferson Avenue.
  18. \*Warren I. Lee, R., 214 Parkside Avenue.
  19. \*Felix J. Sanner, D., 58 Bremen Street.
  20. \*Harrison C. Glore, R., 1135 Madison Street.
  21. Samuel Weinstein, R., 327 South Fifth Street.
  22. \*Albert Lachman, R., 372 Palmetto Street.
  23. Michael C. Beck, D., 1040 Herkimer Street.

## LEWIS.

\*C. Fred. Boshart, R., Lowville.

## LIVINGSTON.

\*James W. Wadsworth, Jr., R., Mount Morris.

## MADISON.

\*Kirk B. Delano, R., Canastota.

## MONROE.

1. \*Edward H. White, R., Rochester Junction.
2. \*James L. Whitley, R., Rochester, 412 E. & B. Bldg.
3. William H. Vicinus, R., Rochester, 642 Main St. E.
4. \*Cyrus W. Phillips, R., Rochester, 409 E. & B. Bldg.
5. \*John J. McNerney, R., Rochester, 1003 German Ins. Bldg.

## MONTGOMERY.

Johnson P. Van Olinda, R., Amsterdam.

NASSAU.

\*William G. Miller, R., Freeport.  
NEW YORK.

1. \*Thomas B. Caughlan, D., 81 Varick Street.
2. \*Alfred E. Smith, D., 28 Oliver Street.
3. \*James Oliver, D., 220 Broadway.
4. \*Aaron J. Levy, D., 460 Grand Street.
5. James J. Walker, D., 6 St. Luke's Place.
6. Harry Kopp, R., 24 Avenue D.
7. \*Peter P. McElligott, D., 229 Tenth Avenue.
8. \*Moritz Graubard, D., 86 Orchard Street.
9. \*John C. Hackett, D., 500 West 41st Street.
10. \*Harold Spielberg, D., 64 7th Street.
11. John J. Boylan, D., 418 West 51st Street.
12. \*James A. Foley, D., 314 East 19th Street.
13. \*James J. Hoey, D., 879 10th Avenue.
14. \*John J. Herrick, D., 150 East 41st Street.
15. \*William M. Bennett, R., 225 Central Park West.
16. \*Martin G. McCue, D., 155 East 47th Street.
17. \*Frederick R. Toombs, R., 16 West 94th Street.
18. \*Mark Goldberg, D., 222 East 72d Street.
19. \*Andrew F. Murray, R., 348 West 118th Street.
20. \*Patrick J. McGrath, D., 300 East 81st Street.
21. \*Robert S. Conklin, R., 361 West 123d Street.
22. Edward A. Doherty, R., 330 East 90th Street.
23. Frederic A. Higgins, R., 281 Edgecombe Avenue.
24. \*Thomas A. Brennan, D., 1343 Lexington Avenue.
25. \*Artemas Ward, Jr., R., 24 East 11th Street.
26. \*Irving J. Joseph, D., 1421 Madison Avenue.
27. Charles A. Dana, R., 55 West 51st Street.
28. \*Jacob Levy, D., 1885 Lexington Avenue.
29. \*Lindon Bates, Jr., R., 14 East 60th Street.
30. Peter Donovan, R., 370 East 135th Street, Bronx.
31. Mitchell E. Friend, D., 149 West 125th Street.
32. John L. Burgoyne, R., 364 Willis Avenue, Bronx.
33. John Gerhardt, D., 615 Eagle Avenue, Bronx.
34. Raphael Garfein, R., 1216 Boston Road, Bronx.
35. Edward J. Raldiris, R., 328 East 198th Street, Bronx.

NIAGARA.

1. Thomas T. Feely, R., Lockport.
2. Philip J. Keller, D., Niagara Falls.

ONEIDA.

1. \*John W. Manley, D., Utica.
2. Herbert E. Allen, R., Clinton.
3. James T. Cross, R., Rome.

ONONDAGA.

1. James E. Connell, R., Baldwinsville.
2. John C. Roberts, D., Syracuse, "The Bastabel."
3. \*J. Henry Walters, R., Syracuse, 931 University Bldg.

ONTARIO.

Sanford W. Abbey, D., Canandaigua.

ORANGE.

1. \*Caleb H. Baumes, R., Newburgh.
2. John D. Stivers, R., Middletown.

ORLEANS.

Coley P. Wright, D., Albion.

OSWEGO.

Thaddeus C. Sweet, R., Phœnix.

OTSEGO.

Stephen C. Clark, R., Cooperstown.

PUTNAM.

\*John R. Yale, R., Brewster.

QUEENS.

1. Andrew Zorn, D., Long Island City.
2. Christian Weiland, R., Long Island City.
3. Charles Metzendorf, D., Woodhaven.
4. Theodore P. Wilsnack, R., Richmond Hill.

RENSSELAER.

1. \*Frederick C. Filey, R., Troy, 517 Frear Bldg.
2. \*Bradford R. Lansing, R., Rensselaer.

RICHMOND.

William A. Shortt, D., Tompkinsville, S. I.

ROCKLAND.

\*Rutledge I. Odell, R., Tomkins Cove.

ST. LAWRENCE.

1. \*Fred. J. Gray, R., Ogdensburg.
2. \*Edwin A. Merritt, Jr., R., Potsdam.

SARATOGA.

\*George H. Whitney, R., Mechanicsville.

SCHENECTADY.

\*Loren H. White, D., Delanson.

SCHOHARIE.

\*Daniel D. Frisbee, D., Middleburgh.

SCHUYLER.

Lafayette W. Argetsinger, R., Burdette.

SENECA.

Charles W. Cosad, D., Junius.

STEBEN.

1. \*John L. Miller, R., Corning.
2. \*Charles K. Marlatt, R., Troupsburg.

SUFFOLK.

1. \*John M. Lupton, R., Mattituck, L. I.
2. \*George L. Thompson, R., Kings Park.

SULLIVAN.

John K. Evans, D., Bloomingburgh.

TIOGA.

\*Frank L. Howard, R., Waverly.

TOMPKINS.

Fox Holden, R., Ludlowville.

ULSTER.

1. \*Joseph M. Fowler, R., Kingston.
2. \*Edward Young, R., Ellenville.

WARREN.

Daniel P. DeLong, D., Queensbury.

WASHINGTON.

\*James S. Parker, R., Salem.

WAYNE.

Marvin I. Greenwood, R., Newark.

WESTCHESTER.

1. \*Harry W. Haines, R., Yonkers.
2. William S. Coffey, R., Mt. Vernon.
3. \*Frank L. Young, R., Ossining.
4. John A. Goodwin, R., White Plains.

WYOMING.

James L. Brainerd, R., Gainesville.

YATES.

\*Llewellyn J. Barden, R., Gage.

\*Re-elected.

BOOKS RECEIVED.

Acknowledgement of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

BIOGRAPHIC CLINICS, Volume VI. Essays concerning the Influence of Visual Function, Pathologic and Physiologic, upon the Health of Patients, by George M. Gould, M.D., Formerly Editor of American Medicine, Author of various Medical Dictionaries, "Borderland Studies," "The Meaning and the Method of Life," "Righteousness," etc. Philadelphia, Blakiston's Son & Co., 1012 Walnut St., 1909. Price, \$1.00 net.

SURGERY: Its Principles and Practice, by various authors. Edited by WILLIAM WILLIAMS KEEN, M.D., LL.D. Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia, and John Chalmers DaCosta, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia, Volume V. With 550 illustrations, 45 of them in colors. Philadelphia and London. W. B. Saunders Company. 1909. Price, cloth, \$7.00 net.

REPORT NO. 3 ON THE ORIGIN AND PREVALENCE OF TYPHOID FEVER IN THE DISTRICT OF COLUMBIA, 1908. By M. J. ROSENAU, L. L. LUMSDEN and JOSEPH H. KASTLE, A.M., M.D. Washington, D. C. Government Printing Office.

PREVENTABLE DISEASES. By WOODS HUTCHINSON, A.M., M.D., Author of "Studies in Human and Comparative Pathology," "Instinct and Health," etc., etc. Clinical Professor of Medicine, New York Polyclinic, late lec-

turer in Comparative Pathology, London Medical Graduates, College and University of Buffalo. Boston and New York. Houghton, Mifflin Company. The Riverside Press, Cambridge. 1909. Price, \$1.50 net.

**DISEASES OF CHILDREN.** Edited by ABRAHAM JACOBI, M.D., LL.D. Member American Medical Association, American Pediatric Society, Association of American Physicians, American Climatological Association, Congress of American Physicians and Surgeons, New York Academy of Medicine, New York Pathological Society, New York Obstetrical Society; Consulting physician, Mt. Sinai, Bellevue, German, Babies', Women's Infirmary, Orthopedic, Minturn, and Hackensack Hospitals, etc. An authorized translation from "Die Deutsche Klinik," under the general editorial supervision of Julius L. Salinger, M.D. With thirty-four illustrations in the text. New York and London. D. Appleton & Company. 1910.

**A PRACTICAL TREATISE ON OPHTHALMOLOGY.** By L. WEBSTER FOX, M.D., LL.D. Professor of Ophthalmology in the Medico-Chirurgical College; Ophthalmic Surgeon in the Medico-Chirurgical Hospital, Philadelphia, Pa.; Member of the Army Reserve Medical Corps, etc. With six colored plates and 300 illustrations in text. New York and London. D. Appleton & Company. 1910.

## BOOK REVIEWS.

**OBSTETRICS FOR NURSES.** By JOSEPH B. DE LEE, A.M., M.D. Third Edition, thoroughly revised and enlarged. Philadelphia and London, W. B. Saunders Co., 1908. Front., 512 pp., 8vo. Price: Cloth, \$2.50, net.

In the modern development of medical science and in the practical application of our theoretical knowledge, the trained nurse plays a more and more important rôle. Particularly is this true in cases in which surgery in any of its forms is involved, and obstetrics, according to the teaching and practice of today, is surgical. The time is long gone by when the practice of this branch was relegated to the midwife and her unclean methods, or even when the doctor was willing to put up with the assistance of any old woman at hand, who by reason of many personal experiences in child-bearing was supposed to have accumulated a vast and useful knowledge of the subject, and who was at least rich in theories and opinions. We now demand the best that can be had for this work, and select from our list of nurses only such as are well equipped with surgical knowledge and punctilious in applying it. As an aid to such equipment this treatise will be found of value both as a text-book in the training school and as a work of reference for the practicing nurse.

It would seem (if one may judge by results) that it has sometimes been considered that the nurse needs to be trained only in the routine of her duties in the operating or sick room and that a superficial knowledge of the reasons for things is enough for her in her profession. This we believe to be a mistake. The more intimate her knowledge of anatomy, physiology and pathological processes the better will be her understanding of the work she has to do, and such an understanding makes the difference between the trained and the unskilled nurse.

Part I of Dr. De Lee's book is devoted to a description of the anatomy and physiology of the reproductive system, and gives a comprehensive idea of the structure and function of the organs concerned without entering into avoidable technicalities.

A detailed account of the nurse's duties during labor and the puerperium is given in Part II. This includes the preparation of the patient and the lying-in chamber and attending to the requirements of the accoucheur, both in normal deliveries and obstetric operations. One thing the author might have elaborated further: the administration of an anesthetic. This important duty

often falls upon the nurse, and she should be thoroughly acquainted with the methods of giving and also with the dangers attending the use of the various anesthetic agents. The chapters treating of the care of the child, its feeding and its common ailments, are particularly valuable. This subject is not infrequently a weak spot in the obstetric nurse's knowledge.

Part III deals with the pathology of obstetrics and outlines the disorders and complications which may arise during pregnancy, labor or the puerperium. The nurse's part and responsibility in the treatment of these troubles are explicitly set forth, and she may learn from these chapters not only the indications for treatment but also the best methods of applying it.

A plea is made for more nurses who shall train themselves especially for obstetric practice, and in this we heartily concur. It is largely by the help of the trained nurse that we are able to prevent the avoidable complications of childbirth, and it is through her intelligent influence that we must hope to do away with the incubus of ignorance and superstition that even still rests upon this natural phenomenon.

WILLIAM P. POOL.

**TUMORS OF THE KIDNEY.** By EDGAR GARCEAU, M.D., Visiting Gynecologist to St. Elizabeth's Hospital and to the Boston Dispensary, Boston, Mass., etc. With 72 illustrations in text. New York and London, D. Appleton & Co., 1909. 421 pp. Price: Cloth, \$5.00.

This work contains an excellent resumé of our present knowledge of the pathology and pathogenesis of tumors of the kidney; as well as a consideration of their symptoms, diagnosis and treatment; including a consideration of ureteral, perirenal and adrenal tumors, and of actinomycosis and echinococcus of the kidney; together with a chapter on the "Determination of Renal Efficiency."

The chapter, "Solid Tumors of the Renal Parenchyma," is full and interesting. Hypernephroma occupies 108 pages of the text. The pathology, gross and microscopic, the clinical history, diagnosis, surgical treatment, and prognosis receive abundant attention. A table of the published cases, 176 in number, adds to the value of this section.

The author states that particular pains have been taken with the chapter on carcinoma, sarcoma and adenoma of the kidney. The tumors described were found in the Massachusetts General and Boston Hospitals. Microphotographs of sections of these growths are reproduced in the text.

The Embryonic Tumors, the pathogenesis of which is at once interesting and obscure, receive abundant attention. The several theories as to their origin are fully discussed, and a table of 100 published cases is given.

The several theories in regard to the pathogenesis of polycystic kidney are clearly elucidated. Perirenal tumors and adrenal tumors in adults and in children are carefully described, as well as echinococcus and actinomycosis and actinomycocis of the kidney. In the chapter on renal efficiency all the modern methods of estimating the functional activity of the individual kidney and separating and studying the urines are described in detail, including the use of the author's cystoscope.

The book will be found interesting and valuable by the pathologist, the genito-urinary surgeon and the general surgeon.

A. B. J

**TUBERCULOSIS.** A Treatise by American Authors on Its Etiology, Pathology, Frequency, Semeiology, Diagnosis, Prognosis, Prevention and Treatment. Edited by Arnold C. Klebs, M.D., 970 pp. Three colored plates and 243 illustrations in text. D. Appleton & Co., New York and London. Price: Cloth, \$6.00, net.

The appearance of the outside of this volume con-



veys the idea that it is a text book written by Klebs. This is rather unfortunate, since no less than eighteen of America's leading tuberculosis specialists are contributors to the work. The title of the book as printed on the cover should correspond with the inside, or at least have been something to the same effect, such as "American System of Tuberculosis," or "Tuberculosis by American Authors." The names of Baldwin, Barlow, Biggs, Brown, Coleman, Freeman, Hektoen, Hutchings, Klebs, Knopf, McArthur, Minor, Osler, von Pirquet, Ravenel, Sewall, Trudeau and Webb certainly give to the work the stamp of authority and Americanism. It must be said to the credit of Klebs that he knew how to distribute the various subjects among specialists who are particularly familiar with that phase of phthisiology, or tuberculo-therapeutics, which they have treated in this volume. Thus, History is treated by Osler; The Tubercle Bacillus by Ravenel; Tubercle and Morbid Anatomy by Hektoen; Resistance, Predisposition and Immunity by Baldwin; Frequency of Tuberculosis by Klebs; Tuberculosis among the Dark Skinned Races of America by Coleman; Frequency of Tuberculosis in Insane Asylums by Hutchings; Introduction to Symptomatology and Diagnosis by von Pirquet; Symptomatology of Pulmonary Tuberculosis, Physical Examination and Diagnosis by Minor; Introduction to Prophylaxis of Tuberculosis by Biggs; Individual Prophylaxis by Baldwin; Public Measures in the Prophylaxis of Tuberculosis by Knopf; Introduction to Treatment by Trudeau; Specific Treatment by Brown; Specific Therapeutics of Mixed and Concomitant Infections by Webb; Hygiene, Diet and Open Air in the Treatment of Tuberculosis, and Home Treatment by Sanatorium Methods by Coleman; The Sanatorium, Its Construction and Management by Klebs; The Physiology of Climate by Sewall; Climatic Therapeutics by Barlow; Surgical Tuberculosis by Freeman and McArthur.

To bring the work up to date, each author added what he had learned and seen of importance at the International Tuberculosis Congress in Washington. The Appendix is as valuable as the text. Thus, Appendix No. 1 describes the Tuberculo-Opsonic Index by Dr. Mary C. Lincoln of Chicago.

Appendix 2 contains the Prize Leaflet for Teachers by Goodall.

Appendix 3: the Prize Leaflet for Mothers by Kress.

Appendix 4: an Act to Provide Registration.

Appendix 5: Knopf's Instructions for Physicians in Private Practice.

Appendix 6: Knopf's Formulary for the Symptomatic Treatment.

Appendix 7: Knopf's Devices for the Prevention of Tuberculosis.

Appendix 8: Diet Lists by Members of the Department of Household Administration of the University of Chicago.

A most valuable addition to the book is a bibliography selected by Klebs, arranged by names of authors and subjects as well, following the standard set by the Surgeons-General Library in Washington. The book is handsomely gotten up and, besides three color plates, has no less than 342 illustrations in the text.

All the authors confine themselves to as concise a discussion of the subjects assigned to them as possible. An exception to this is the symptomatology and diagnosis by Minor, who devotes 240 pages to this subject, altogether too much for the busy practitioner to digest. This is perhaps the only criticism that can be made of this magnificent volume, which represents the best and most modern thought expressed by American authors on the etiology, pathology, frequency, semiology, diagnosis, prognosis, prevention and treatment of tuberculosis. It is perhaps the best textbook on tuberculosis in existence and is destined to render invaluable service to the general practitioner who has so much to do with tuberculous disease.

MYOMATA OF THE UTERUS. By Howard A. Kelly and Thomas S. Cullen. Illustrated by August Horn and Herman Becker. W. B. Saunders Company, 1909. 700 pp.

This large volume is devoted entirely to an analysis of the 1,674 cases of myoma that have come under the care of the authors, chiefly at the Johns Hopkins Hospital.

The scope of the book is very like that of Cullen on "Cancer of the Uterus," published in 1900. Like it, a large part of the work is made up of case histories and illustrative drawings.

The illustrations are quite up to the standard set by the writers in their previous works.

It would be hard to think of a clinical complication or pathological transformation of myomata that has not been dealt with in a satisfactory manner.

The limitations of the work, clearly set down in the preface, give us a volume without historical chapters, or any description of the many operative procedures of others. The writers draw upon their own experience, pathological, clinical and operative. To consider the book a little more in detail, we note that the older name "fibroid," and the newer "fibromyoma," have been entirely replaced by "myoma." Myoma has the advantage of accuracy over the former and of brevity over the latter. The histology of myoma is well considered. Parasitic myomata, *i. e.*, humors getting more or less of their blood supply from other organs, such as intestine and omentum, have been frequently met with.

Eighty pages are devoted to the degenerations and inflammations of these tumors, but we think the one hundred pages devoted to myosarcoma the most valuable portion of the work. There is a well-chosen bibliography of the subject, and the authors' own cases illustrate the various forms of the disease. Sarcomata are shown originating from the fibrous tissue cells and also the muscle cells of myomata. In any case the transformation begins in the center of the tumor. One myoma of a uterus may show sarcomatous changes, while all other nodules show myoma only. Of course sarcoma of the uterus occurs in other forms than as transformed myoma—for instance, there is a sarcoma of the mucous membrane, and maybe some of the sarcomata of the emasculation have been malignant from their beginning and are not simply transformed myomata. One must criticize a little the occasional use of the term "sarcomatous degeneration." Malignancy is not a result of degeneration in a tumor. A sarcoma may degenerate, but a sarcoma is not a degeneration. That the term occurs so infrequently would suggest that the writers hardly approve of it.

In describing the alterations of the mucosa in cases of myoma the writers restrict the word "endometritis" to real inflammatory conditions, instead of making it, as do some clinicians, cover every change in uterine mucosa from simple œdema to an atrophy accompanying the menopause. This makes chronic endometritis an uncommon complication of myomata and, we may add, an uncommon disease.

Among the many subjects calling for special consideration in this volume are bladder and rectal conditions, myomata found at autopsy, death due to myomata, and the effect of castration upon them. On the subject of etiology the authors have only negative evidence to offer. A careful examination of the very smallest myomata has shown nothing to indicate that they develop from or around bloody vessels.

The chapter on symptoms is rather statistical and devoted as much or more to physical signs than to the actual complaints of patients. We should have been glad to see a chapter on prognosis, for this is a question with which one is immediately confronted on seeing a patient for the first time. Our recommendation for treatment depends on what we think the future has in store for the particular case. We ask ourselves whether the tumor is growing rapidly, whether the

menopause is coming soon, whether it will help matters or whether post-climacteric degenerations may bring on new symptoms.

The authors have had abundant experience with abdominal myomectomy and devote a very thorough chapter to the subject. They discuss mortality, which, by the way, is as high as with hysterectomy; pregnancy following myomectomy; the age at which it is to be recommended, as well as giving a clear and well-illustrated description of the operation. Comment is made upon the greater temperature and pulse rate of this operation, as compared to hysterectomy in the authors' experience, and it is said that "no other class of abdominal operations has given us as much anxiety during the first week after operation."

The authors, as a rule, prefer supra vaginal to complete hysterectomy. The ovaries, unless badly diseased, are not removed. In any case the cordal vessels are twice ligated, not en-masse, but as isolated structures.

No reason is assigned for recommending a non-absorbable ligature for the uterine vessels. Catgut is used for all other parts of the operation.

Vaginal hysterectomy is given short shrift. It has been performed only one-fortieth as frequently as abdominal hysterectomy. The man of limited experience may be saved future trouble by a careful reading of the chapter concerned with the operations in difficult cases. The method of bisecting the uterus prior to removal is described with insistence that it is only intended for unusual cases.

The usual methods of operating do not differ greatly from those of other surgeons, except that a preference is shown for the technique first advocated by Kelly, of ligating the vessels of one broad ligament, then cutting across the cervix, then ligating the opposite uterine, and finally the opposite ovarian artery.

Their patients are allowed to drink all the water they want as soon as they want it; they are raised on the back rest in two or three days; enemas are resorted to largely to the exclusion of cathartics, and morphine is given in sufficient quantities to control the pain of the first twenty-four hours.

The book is the result of large clinical and pathological experience. By tracing the histories of the patients as far as possible down to the present time, the value of the book as well as the labor of compiling it has been much increased. The book is not easy of consecutive reading but will be found a very excellent reference work on all things pertaining to myomata of the uterus.

FRANK S. MATHEWS.

**INBORN ERRORS OF METABOLISM.** The Croonian Lectures delivered before the Royal College of Physicians of London, in June, 1908. By ARCHIBALD E. GARROD, M.D., M.A. London, H. Frowde, 1909. 168 pp., 12mo. Cloth.

Under this title the author presents his Croonian Lectures, delivered in June, 1908, at the Royal College of Physicians of London. The subjects considered are of considerable scientific interest and of not a little practical importance. Albinism, alkaptonuria, cystinuria and pentosuria are the errors of metabolism discussed. While it is clear that there is little hope for successful therapy in these conditions the importance of their clinical recognition is not to be underestimated. Albinism, of course, offers no diagnostic difficulties, but the other abnormalities would surely escape recognition unless the clinician is on the alert. In pentosuria we have a condition, we have an abnormality which seems to have but little influence on the life of the individual; but in the fact that this sugar gives some of the reactions similar to glucose we have a possibility of grave error.

The book is exceedingly well written in every particular, and the literature upon every subject has apparently been brought well up to date.

DUDLEY ROBERTS.

**SPRAINS AND ALLIED INJURIES OF JOINTS.** By R. H. ANGLIN WHITELOCKE, M.D., M.C. (Edin.), F.R.C.S. (Eng.). Henry Frowde, Oxford University Press, Hodder & Stoughton, Warwick Square, E. C.

The preface to this interesting book calls attention to the reasons that induced the author to prepare it, namely, the more extensive employment of radiography, which showed that many so called sprains were in reality injuries to bones, and the new Workmen's Compensation Act. This legislation has not only drawn the attention of the lay public to these accidents, but has placed them on a much more important footing in the estimation of the members of the profession. The medico-legal aspect of the subject is also brought into greater prominence, for not only is the question of compensation an important one with insurance companies, but it is found that it is in this particular class of slight injuries that the greatest difficulty is experienced in estimating the exact monetary value of a claim. It is to be hoped that in subsequent editions a copy of the act will be printed in the appendix. That similar legislation will be enacted in the various states of this country is likely, in fact the labor leaders desire to make the matter a national issue. In New York State, chapter 31 of the Consolidated Labor Laws, adopted February 17, 1909, contains in article 14, sections 200 to 204, the law in this State in regard to the employers' liability. It has not been in force long enough to come to any definite conclusions as to its real value to the workman and the employer, and it may be frankly stated that neither side is thoroughly satisfied with it. In order to improve it, if possible, at the present time (December, 1909) a hearing is being held before a legislative commission sitting in New York, which was appointed to investigate the question of the revision of the law.

Possibly the greatest value in the book lies in the fact that it calls attention to a large number of conditions which without the most careful, and thorough examination may cause one to err in diagnosis. Strains, sprains simple and complicated, sprain with fracture and fracture sprain, sprain with dislocation and the sequelæ of sprains, are carefully considered. The lesions in which the X-Ray is of value are spoken of and illustrations of same are freely inserted in the text. The X-Ray prints are not of the best, and it seems remarkable that a picture (figure 5, page 23) should be used with the following explanation—"Photograph of knee with elastic pressure applied for sprain—Author's plan. The knee is here represented as being too straight—it should be more flexed." Why did not the author take another photograph to show it correctly and tell one how much flexion is proper. Another instance somewhat similar is figure 62, page 207, in which it is stated that the leg is too tightly strapped, but this reference is valuable because it calls attention to a condition or state of affairs that one must guard against. Too tight strapping or bandaging is very common error.

To the American reader reference to crepe velpeau bandages, gamgee tissue, Ewen's chamois leather plaster, Terebine Liniment, Vasogen-Iodine, Leucoplast (Pilot Brand, are rather puzzling, and some of them cannot be procured even in the larger cities.

The text is clear, but the same might be materially abridged and the value of the book increased.

W. R. T.

## DEATHS.

FRANK E. DEWEY, M.D., Peterboro, died December 6, 1909.

SARAH R. A. DOLLEY, M.D., Rochester, died December 27, 1909.

J. L. JOHNSON, M.D., Riverhead, died December 2, 1909.

FERDINAND C. VALENTINE, New York City, died December 13, 1909.

# NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

ALGERNON THOMAS BRISTOW, M.D., Editor  
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Vol. X.

FEBRUARY, 1910

No. 2

## EDITORIAL DEPARTMENT

### THE MENACE OF THE ANTI-VIVISECTIONISTS. A WARNING.

**T**HE New York Anti-vivisection Society has entered on its annual campaign to persuade legislation at Albany, the purpose of which is to destroy the progress of medical science gained through animal experimentation. This society has always stood for radical measures but has not in the past shown its real intent. It had made a pretence of favoring animal experimentation by qualified and expert persons; but in its outrageous and wholly unjust and really absurd public attack upon the Rockefeller Institute for Medical Research, the falsity of this pretence has been exposed and the true purpose, namely, to abolish all experiments upon animals, has been exhibited. The society has attempted to impose upon the public credulity by means of wilful misrepresentations and the descriptions of commonplace surgical procedures, familiar to every physician and employed in every modern hospital, which have been ignorantly described by a scrub-woman and loudly paraded as cruelty!

A year ago this society brought to this country from abroad Miss Lind-af-Hageby, the notorious English champion of anti-vivisectionism, to inflame the American public against the teachings of modern medicine. The medical and lay press promptly exposed the methods employed by Miss Lind and her standing in England and deprived her visit and speeches of all real effect. This year the society is bringing over, for a similar purpose, the Hon. Stephen Coleridge, and will exploit him on the lecture platform and

socially, in New York City, Philadelphia, Baltimore and Washington. It is desirable that the medical and lay public should be accurately informed of the manner of person the Hon. Stephen Coleridge is.

He is the honorary secretary of the National Anti-vivisection Society, which stands for the total abolition of vivisection, but until that can be secured he comes for restriction. He, therefore, pretends to be moderate in his demands. Before the Royal Commission he testified that he had never seen an experiment on animals, and never wished or intended to see one, and had never seen an animal after experiment and was wholly unacquainted with the subject from personal knowledge. He stated, further, "that all these experimenters have the greatest contempt for the Act of Parliament. They would deny a breach of the Act just as I would deny a breach of the Motor-car Act. I drive a motor-car, and when I go beyond the speed limit, and a policeman asks me, I say, 'No, I am not going beyond the speed limit.'" His conception of what constitutes evidence was revealed in the use of the "Brown Dog" incident, published in the book of Misses Lind and Scharton, through which he was convicted of slander and obliged, by a British jury, to pay Mr. Bayliss the sum of \$10,000 and the costs of the trial. This should suffice to show the real standing of the Hon. Stephen Coleridge and with how little authority he speaks, and yet he is described as a fluent and plausible lecturer; so that it will be well to be guarded against him.

The bill to be introduced into the present legislature will, as in the case of its predecessors, demand the so-called "open door," which it is proposed to secure by means of inspection of laboratories by a commission composed of persons chosen from humane societies, so called, and physicians! No misconception should be allowed to be concealed behind the "open door" phrase. The doors of every laboratory are already widely open and admit freely every qualified person; but they are and should continue to remain closed to idle, meddling and unfriendly persons, who will seek to find excuses to obstruct and eventually to abolish altogether, the important and delicate work going on there. The work of inspection, were it honorably carried out, would be so difficult and onerous as to be well-nigh an impossible task for even the most gifted, well-informed and highly trained persons, so manifold and varied are the subjects of medical research. It must be remembered, moreover, that no instance of cruelty, alleged to have been perpetrated in a laboratory, has ever been substantiated; and, above all, a warning should be taken from what has just transpired in the case of the attack upon the scientific work of the Rockefeller Institute, which incident shows more clearly than words can describe, what kind of testimony relating to cruelty is acceptable, and gratefully so, to the anti-vivisectionist mind.

Besides the pitfalls and dangers of inspection other equally objectionable features, among them registration and reports, will probably be included in the bill. But enough has been said to show how sinister is the activity of the anti-vivisectionists. The New York Anti-vivisection Society is also opposed to the germ theory of disease and looks upon vaccination and serum therapy as both useless and injurious. The duty is urged, therefore, upon the individual members of the State Society, to lose no time in acquainting the representatives in the legislature from their districts, of the dangers which are concealed in the anti-vivisectionists' campaign, and thus to preserve the State from committing an egregious blunder the injurious effects of which would be immeasurable. S. F.

### THE ECONOMICS OF MEDICINE.

**A**N editorial on this subject which appeared in the December issue of the NEW YORK STATE JOURNAL OF MEDICINE has elicited widespread comment. In another part of this number appear several answers to the editor's query, "What is to be Done?" All the replies to this question are practically unanimous in the opinion that the solution of the question depends on organization. If the writers added another word—loyalty—their answers would be complete remedies, each and all.

There is the difficulty. The plumbers are loyal to one another and to their organization, as

are all the different trades which have solidified themselves into unions. The power of these bodies centers about one fact, the loyalty of the members to their organization and to each other.

When, however, we turn to our own profession, we find ourselves absolutely helpless to contend with the grave evils which confront us. We are unable to bring about a better condition of affairs in the hospitals, which are at present exploiting the profession for the purpose of filling the hospital coffers.

Hospital staffs are subjected to humiliating tyranny to which they bend in abject submission because the members of the staff are not loyal to one another, and they know that they can expect no support from the profession. Should they resign, their places could be filled in an hour by their disloyal brethren. We do not compare favorably with the plumbers. They know the meaning of the word loyalty and the value of the fact. We are like a lot of wolves, ready at a moment's notice to rend one another. Until we change our attitude and learn to be loyal to a principle, loyal to an organization and loyal to one another, no remedy will apply, and we shall continue in our present condition of slavery unable to help ourselves, bound hand and foot in the toils of our own treachery and folly.

A. T. B.

### A WORD TO OUR CONTRIBUTORS.

**T**HERE is nothing more congenial to the editor than the ability and power to please his contributors. It would be delightful for him and for all if every man could have his paper printed "right away." Unfortunately the NEW YORK STATE JOURNAL OF MEDICINE only appears once a month. It shines for all—all good doctors at least who are members of their County Society—perhaps by reflected light for others also. Its pages are not elastic, however, and it does sometimes add a wrinkle to the brow of care when gentlemen get excited because their papers do not appear at once. Softly, all of you, please. Harken to the policy of the editor. Each of the succeeding numbers of the JOURNAL will be devoted one-half to papers from District Branches and County Societies, one-half to papers from the annual meeting. In this way the editor hopes to be fair to all and escape more or less reproachful correspondence.

At the same time, do not deny him the privilege of selection. A particular paper may be timely and require early publication, while others sometimes acquire flavor and strength like old wine, by keeping. So also juxtaposition often adds to the value of a paper. Therefore, friends, be patient, if you do not appear in print at once. We are doing the best that can be done under the circumstances and limitations which surround a monthly journal of a limited size.

A. T. B.

## Original Articles.

### WHAT CAN WE DO TO IMPROVE THE SITUATION.\*

ANNUAL ADDRESS OF THE PRESIDENT.

By CHARLES G. STOCKTON, M.D.

**I**N A SENSE the President's annual address is a valedictory as well as a greeting. A greeting because it occurs at the beginning of the annual meeting, and a valedictory because it nearly concludes the term of service.

Once more let me express to you my deep appreciation of the honor which you have bestowed upon me and thank you for the consideration and the co-operation that I have met with on all sides.

Since our last meeting there has passed from among us, under circumstances of especial sadness, one who was the devoted friend of the society and the personal friend of most of its members. We shall long remember with loyalty and admiration our former president, Dr. William C. Wey.

The success of the physician has always depended upon his ability to convince people, and the doctor has a following in ratio to the extent of his command of public and private confidence. In these days more than ever we are devoting ourselves to the education of the community, not alone individual members thereof, but society as a whole. An excellent instance of this is seen in the enactment of the pure food law in the face of the opposition of organized interests, for its necessity had been shown not only to Congress, but to the constituencies of the representatives. Another example is seen in the growing willingness of the people to obey quarantine laws. While there is much to be accomplished in the control of epidemics, the situation is steadily improving in proportion as the people are made to understand the necessity and to place confidence in the guidance of professional authority. We may discover a great promise for the future in the fact of the interest shown by the average man in the matter of pure water supply, proper drainage, the control of mosquitoes and other carriers of disease. Such instances as the practice of vaccination and the use of diphtheria antitoxine are so universally accepted that we fail to realize what remarkable illustrations they are of the obedience of the community to the dictates of medical science. In the campaign against tuberculosis the success has been so marked that we now have comparatively little difficulty in obtaining the consent of the patient to follow that course in life most suited to him; the trouble now lies in providing him with the opportunity.

In the state care of the insane and of the blind, the movement to do away with ophthalmia neonatorum and the gain in the matter of educating defective children stand out among numerous ex-

amples of altered public opinion, the outcome of professional education and guidance. Through this teaching function of the profession, with the rise of scientific knowledge and with higher professional ideals, we are achieving the confidence of mankind. We know that this has been the slow outgrowth of centuries of effort and disappointments, but even the most discouraged man in our ranks, when he pauses to reflect, must feel proud of the success which has attended his profession in guiding mankind through the wilderness of mysticism, demagoguery and other hateful manifestations of ignorance. As the profession has seen the result of its educational efforts and the success which has come from telling the truth and insisting upon the wisdom of following it, there has undoubtedly developed a much greater degree of confidence between physician and patient than ever existed before. It is a fact that we are much better able to be truthful with our patients for the reason that we ourselves are not dealing so much in mystery—when a man knows a thing he can state it—and the public soon learns when a man is stating a thing that he knows.

Many of us remember the splendid address of the late President Cleveland before the society four years ago dealing with the importance of the physician's taking the patient into his confidence. The lesson of that address has not been forgotten and continues to exercise a good effect.

Despondent men sometimes deny it, nevertheless, it is true that we are winning from a reluctant public a consent to be guided by our judgment. How else explain their consent to submit to serious surgical procedures, to the separation of an individual from his family, or to increase of taxation and large expense in the matter of private and public sanitation?

But we should remember that in proportion to the extent with which we command public confidence we assume a burden of responsibility. It is already so great that but for our training and practice we should hesitate if not retreat. Great as it has been in the past, our responsibility is now swelling into yet larger proportions, and must increase more and more if the world is to be freed from many of the calamities that now afflict it.

Upon review of the question, it would appear that matters no less than the upbuilding of the race, the conservation of the sanity of mankind, in short, the future of civilization are incumbent upon us. We bear a weightier burden than is realized, and it must be said when we take into consideration the waywardness of human nature, the old and the new obstructions, the antagonistic legislation, the lack of sympathy with our motives, and the withdrawal of co-operation, that we carry the load with considerable dignity and with a light-heartedness that holds some promise.

What can we do to improve the situation? That is the inevitable question, the question in

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the background of each physician's life. It is in the attempt to answer it that medical societies are supported and professional organization sought for.

Surely, in this direction lies an undoubted means of strengthening our thews. We have seen in recent years the erection of the most perfect framework of medical organization to be found in history—that of our own system of national, state and county societies. It has successfully withstood inimical criticism and, what is more dangerous, the unseeing neglect of a proportion of the profession. Criticism we need and I doubt not that it will profit us, but the indifference of some is depressing and unfair.

In our own state we have a splendid membership of something like 7,000 men. But what of the other thousands who are profiting, to a fragmentary extent only it is true, by our efforts, and yet who stand apart? Can we not by some means represent a more united profession? Indifference is a crime. It is so because it favors wrongdoing and retards other advance. A complaint is made to some extent of those who work in country districts, but they are less blameworthy than the city dwellers. And the hard working general practitioner is less guilty than the more favored few who have through opportunity or ability reached positions of special influence.

Yet there are men, well known, productive, filling high places, esteemed by their confreres, who take little or no interest in state or county society transactions. It is hard to forgive these men and yet they are often good physicians, good comrades and honest citizens—although, alas, indifferent.

This discouraging contemplation is fruitless. Let us rather be more alive to the fact that medical enthusiasm is contagious and we may, by sticking to it, successfully infect them,—these indifferent brothers.

I appeal to you all,—make unceasing efforts to double our membership. You will find most valuable ammunition in the original and discerning editorials that appear in the *New York State Journal of Medicine*; and, by the way, remember that an increase of membership means a journal of still greater potency. The brilliant editor has plans that merely await funds in order to provide us with a journal that shall have no superior.

The more complete we make our organization, the more satisfactory will become the morals of the profession. Every man may be benefited by frank discussion of the problems springing from our relations to the public and to each other. These problems are not static. With the rapidly changing condition of society, new questions arise, or old ones take on a new complexion; men preoccupied in learning medicine are forgetful of the important practical matter of learning the social and ethical requirements of the physician. By avoiding rancor, observing patience and setting a good example, all of us can help, and most

of us can be helped in this direction. In a recent editorial in our State Journal attention is called to the unfavorable situation of the average physician because of the limited income and the exorbitant cost of living. Undoubtedly much can be done by co-operation and organization here. The fear that this will lead to the accusation of trade unionism need not deter us. We bear that reputation already; we might better profit by it than deny it, and we should take a manly pride in professional, not trade unionism. At any rate, every county society should devote some time to the discussion of the best means of dealing with the situation. No small part of the difficulty is justly attributed to the lessened amount of sickness in the community that is the direct result of our work in teaching better sanitation and the prevention of disease. In some localities physicians are actually suffering through the decline in sickness. The demands have so increased that the average worker in the profession finds it difficult to maintain himself in that social stratum to which he belongs. This matter probably contributes towards some of the present defects in the profession, and is offered as an excuse for the spirit of commercialism that occasionally shows itself. This evil takes many forms, among other things it affects the question of fees. Medical service cannot be treated on a commercial basis. It has been said that "physicians render a service that cannot be measured and cannot be weighed" and, within reasonable limitations, people should pay according to their means. If this position is made tenable for the profession, it must keep itself absolutely free from all charges of improper interestedness and dishonorable transactions. This remark has a bearing upon a comparatively new evil, or rather, upon an old evil that has revived and which is showing itself in some parts of the state, in the form of a division of fees. It is known that not a few surgeons and other specialists have adopted the practice of giving to the family physician who brings them a case for operation a certain proportion of the fee. In some places there is a competition among the surgeons, who practically outbid each other as to the amount that shall be returned to the family physician. This is done secretly without the knowledge of the patient who pays the money. Reduced to its last analysis it is bribery and graft. It is a temptation for men to select a surgeon not because of his ability, but because of his willingness to divide. It tempts men to recommend for operation cases that should be treated otherwise. It tempts surgeons to operate when unnecessary. It leads them to charge for their services not what they consider just remuneration, but excessive fees in order that they may pay the percentage to the family physician. It leads to demoralization in the profession, is lowering to professional dignity and would prove a death blow, if it were generally practiced, to the high-minded, righteous

influence of the profession in guiding the public. National, state and municipal governments will cease to be influenced by men who resort to such dishonorable methods in their private business relations. Of what good is the effort to reach an exalted place in the opinion of the world if medicine is to be vitiated by the practice of methods that will discountenance us in the eyes of pure minded men? Those who practice this system defend themselves thus: The surgeons say that they realize that the attending physician receives too little for his service and they feel that it is but just that he should be better recompensed than he is by the patient. Then it is held by the physicians who accept this percentage that they receive no pay for the responsibility which they take in advising an operation, and that for their share in this responsibility they should receive a portion of the fee that ordinarily goes to the surgeon. Some of these men make this defense apparently with sincerity. With due appreciation of the generosity and magnanimity of the surgeons and specialists concerned, and with full consideration of the undoubted fact that many family physicians do take a large part of the responsibility without just compensation, it stands to reason that such a remedy would be destructive of right relations among physicians and honest men and would discountenance us with the public.

We perfectly understand the peculiarly confidential nature of the relations that exist between patient and physician. The law concedes this and protects the principle. Above all things the patient must be able to trust the physician, and the physician cannot afford to weaken this confidence. We must not allow the element of commercialism to sneak in and break this relation, for it certainly is not to the interest of the patient and cannot increase the average professional income. The most that can be accomplished is to attract fees away from their legitimate course and to guide them to the pockets of those who are resorting to a variety of conspiracy. No objection can be raised to legitimate means of obtaining proper fees, but there is the greatest objection to a secret understanding between a specialist and a general practitioner whereby a patient is defrauded and where his vital interest is placed in jeopardy. For instance, where there arises a question of operation, the patient naturally looks to his family physician to save him, if possible, from the danger, pain, fright and expense of an operation. This faith should not be tampered with. The most fundamental principle of a physician's creed may be said to be: "I will keep faith with my patient." But often our patients do not keep faith with us. That, however, is another matter. Our natural heritage from honorable predecessors has given us a reputation for telling the truth so far as we know it, and sincerity forms the ground work of our legitimate transactions. Can we afford to leave in the

mind of the community the suspicion that for personal gain an attending physician may possibly enter into collusion with a specialist?

The practice of "dichotomy," or fee division, is not new, it existed during the reign of Louis XIV. and was killed by publicity which seriously crippled the practice and at the same time crippled the doctors who followed it. Naturally, this evil has not a wide vogue, but, unfortunately, it has touched some of whom better things should be expected. Should it continue, it is inevitable that it will come to public knowledge and ultimately will be eradicated. Meantime discredit falls upon the profession and unfair competition must be endured by honest men.

The theory of consultation seems in these days to have suffered from a solution of continuity. Consultation and co-operation among physicians should be widely practiced, yet for one reason or another, such is not the case. Sometimes a spirit of narrowness leads to disinclination for consultation, often, doubtless, for the purpose of sparing the patient expense, at other times, it may be, from fear of a confession of weakness, which might lead to dissatisfaction on the part of the patient. The result of this is that the patient not infrequently comes to ask for a consultation, which mortifies the physician and puts him at a disadvantage. At other times, the patient, unknown to the physician, selects his own consultant, which produces an unfortunate situation. The consultant lacks the information which might be acquired from the attending physician whereby the patient is the loser; or, if the consultant happens to be right in making a diagnosis, he may unintentionally injure the family physician in his explanation to the patient. It would seem that we should attempt to foster a greater trust among our patients, and if our conduct be based on a disinterested attempt to reach scientific ground, at the same time eliminating as far as possible personal grounds, we are on the safest course for all concerned. This attitude is becoming the more necessary for the reason that the public is now much better educated regarding medicine and disease than formerly, and a large number of laymen are coming to discriminate between competence and incompetence. In fact it would appear that our troubles would largely dissolve and the complexities become simple if the best interests of the patient were kept constantly in sight, and our fees regulated according to our responsibilities in looking out for those interests.

Some physicians speak resentfully of the smallness of fees as though it were the outcome of a hard edict from a throne. Who makes our fees? Who educates the people as to the value of our services? No one but ourselves. If our fees are too small, we, and we only, are responsible. I can see no way to increase fees but to make them worth more. To paraphrase the words of Horace Greeley, the way to increase fees is to increase

fees. In these days a professional opinion is worth nothing or it is worth more than a dollar. Perhaps an apothecary can afford to compete on price; the only legitimate competition for the physician is a competition on merit. The doctor should charge for the investigation, the time and the responsibility. When he charges for a prescription alone, it is rather beneath his dignity, and the layman fails to discriminate between the transaction and one with the grocer or butcher.

Unquestionably there are difficulties for us to surmount, as there always have been and as there always will be. Of this we should not complain. Prof. Royce points out that in the struggle between good and evil there dwells the element of growth and development. The road of the physician is likely to remain one fully beset with trials and unexpected obstructions, and for that reason we may predict for it a glorious future. The feeble and halting are not so likely to select medicine for a career, but the courageous and untiring worker will not hesitate to take the trail that shows the foot-prints of such splendid predecessors as have been ours.

A man will enter medicine not because it is easy, but because it is hard, and he will find the reward not in grasping his ideal, but in the joy of the struggle toward that ideal.

Therefore, we have no right to complain of our times or our conditions, but rather we should rejoice that to us has come the opportunity of battling against obvious evils. There need be no fear that preventive medicine will ever remove the field of labor. It is evident that preventive medicine requires the best effort that we can put forth, so at most it only means transferring the activity from one side of the field to the other. Of one thing we may be sure; we shall never find in medicine an easy job. The attempt to make it luxurious or to free it from its weight of responsibilities will defeat its own end, as surely as a biceps grows flabby from lack of use.

### THE EFFECTS OF ALCOHOL AS OBSERVED IN DERMATOLOGY.\*

By L. DUNCAN BULKLEY, A.M., M.D.

**A**LCOHOL is a poison; taken pure and in sufficient quantity it pretty promptly destroys life, after causing loss of consciousness, profound muscular relaxation, and diminished respiration, with lowering of temperature. And yet in one form or another alcohol is in well nigh universal use over a large portion of the earth, especially in the temperate zones; for in the extremes of heat and cold its employment is so disastrous that it is commonly avoided.

So much has been said and written in regard to the effects of alcohol on the system that there is no need of great enlargement on the subject

at this time. But it is interesting to note that relatively little is said in regard to its beneficial action, whereas any amount of evidence has accumulated concerning its harmful effects on all the tissues of the body; although much evidence has also been often collected showing apparently good results from the moderate use of some alcoholic beverages, temporarily at least.

But experimental study has established the fact that alcohol certainly has a prejudicial effect on cell life, both vegetable and animal, and pathological studies have demonstrated degenerative changes in almost all the tissues of the human body as a result of the action of alcohol taken internally. It is natural, therefore, to suppose that the skin suffers with the rest of the economy, and clinical experience shows that this is the case, often from even the moderate use of alcoholic drinks, although as yet we have not the histopathological evidence of the fact.

An interesting experimental demonstration having some bearing on our subject, is that concerning the influence of alcohol upon susceptibility to infection<sup>1</sup> "These various experiments are in remarkable accord, nearly all showing that animals intoxicated by alcohol are more susceptible to bacterial infection or to toxins than are normal animals, . . . and that the process of experimental immunization is unfavorably influenced by alcohol."

Another instructive line of experimentation has demonstrated in chronic alcoholism of animals, a fatty metamorphosis affecting especially the cells of the liver, the heart muscle, and the kidney; also changes in the central nervous system and degenerations of the peripheral nerves.

A great consideration in regard to the effect of alcohol in connection with diseases of the skin relates to its effects upon the capillary circulation. Now all experiment and observation show that by its sedative action on the vaso-constrictor center of the medulla, alcohol causes a slight paralysis of the nerves controlling the capillaries of the skin, and the sense of flushing after its use in any quantity is well recognized. This dilatation of the cutaneous capillaries leads to a greater flow of blood to the surface of the body, and of course to a greater congestion of diseased portions, which congestion is one of the chief features in many dermatoses most difficult to control. With this congestion there is also an increased action of the perspiratory glands, with probably a modified secretion: for all experimenters state that a certain proportion of alcohol taken in the system is given off unoxidized by the kidneys, lungs, and skin, and it has been definitely demonstrated in exhalations from the skin.

Still another result of alcohol is to be mentioned, which may have some bearing in regard to its influence in diseases of the skin, namely,

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<sup>1</sup> Welch, *Physiol. Aspects of the Liquor Problem*. Boston, 1903. Vol. II, p. 360.



its effect on muscular tissue. It has been definitely determined, both by animal and human experimentation, and by wide experience in practical life, with soldiers, workmen, explorers, travelers and others, that while the first effect of alcohol on muscular tissue is stimulating, this is invariably followed by a relaxing or debilitating effect, which greatly lessens the production of muscular energy; this is true of both striped and unstriped muscular fibre. This fact may be of importance in connection with the muscular elements in the skin, which have much to do with its tone and its glandular system.

Finally, we have to consider the effects of alcohol upon metabolism, that is upon the total action of the organs which have to do with the transformation of food stuffs into tissue and energy, and the final results of anabolism and catabolism, which have so much to do with many diseases of the skin.

That alcohol in appropriate quantities acts as food, and is oxidized, and utilized in the production of energy, there can be little doubt, in the light of the many pharmacological experiments which have been made. Being rapidly absorbed from the stomach and upper small intestine it circulates in the blood as alcohol, and quickly affects the brain and tissues, until it has become more or less completely oxidized, and has disappeared. But what the influence of the circulation of alcohol is upon the metabolic processes of the body, has not been determined experimentally, and we have to rely on ordinary clinical evidence; that it does in a measure interfere with this is common medical knowledge. In this manner, therefore, it can act prejudicially in connection with many diseases of the skin.

The chemic-vital processes on which nutrition and the dynamics of the body depend are, as we know, centered around what is known as oxidation, and the presence of alcohol has been shown to interfere with this in the economy, causing a gradual waning of the metabolic activities of the body. In this manner the disposal of waste substances is hindered and delayed, with the retention of the products of catabolism and the deposit of fat, as also of fibrous tissue.<sup>2</sup> Kreparsky has shown that alcoholism, acute or chronic, lessens the number of leucocytes, and that the repair of wounds takes place more slowly in drinkers, because of the insufficient supply of white blood corpuscles at the area undergoing healing; this observation has an important bearing in connection with our subject.

The experimental studies which have been made on alcohol have largely related to that substance pure or diluted with water, or to whisky, a relatively simple substance, and it is difficult to apply all the facts to alcohol as it is ordinarily used in daily life; through various experimenters all state that the effect of alcohol is the same,

however it is combined. Practically this latter does not seem to be the fact, for all know that the free use of port and madeira wine has, in times past, been greatly productive of gout, when the same patients can often take a certain amount of whiskey with impunity; further illustrations of the different effects of various alcoholic beverages will readily occur to every one.

In considering, however, the effects of alcohol as actually observed in dermatological practice, it does not seem that we are to regard the toxicity of the alcohol alone, for in daily life that is rarely taken pure or only diluted with water. But we are to consider rather the general subject of the influence of the alcoholic compounds in general use, recognizing, it is true, that while a large share of the effects produced are due to the alcohol contained, a certain amount is also due to the other ingredients which differentiate the various forms of drink. Account must likewise be taken of the adulterations which are shown to constantly exist in cheaper articles, and also occasionally in those of higher grade. Surely all recognize the somewhat different effects from brandy, whiskey, gin, rum, champagne, port, madeira, sherry, Rhine and Moselle wines, stout, ale, beer, cider and various fruit wines, liquors and cordials, besides many others; the different conditions produced on the skin seem also to differ somewhat, probably owing to the varied effects of other components than alcohol on the tissue, producing different effects on the various organs or parts of the body which have to do with metabolism. This is a difficult subject to handle, and I doubt if I can make clear what I observe clinically, and there is a singular dearth of recorded facts on the subject to be found in literature.

One of the first to dwell specifically of the effect of alcohol on the skin was Renault,<sup>3</sup> who wrote under the guidance of Hardy and Hilliaret, at the Hospital St. Louis, Paris. He speaks very strongly in regard to the harmful influence of alcohol in syphilis, which is now a very well recognized fact. He shows by a series of cases that: 1. Alcoholism is one of the most powerful causes of the late manifestations of syphilis; 2. That these develop in spite of an antecedent mercurial course; and, 3. That syphilides in drunkards are mainly ulcerating."

Fournier has insisted on this in his clinics and, at one of the meetings of the French Dermatological Society,<sup>4</sup> he exhibited the case of a young woman with recent syphilis exhibiting enormous postulo-crustaceous and papulo-ulcerating generalized syphilides, induced by the immense amount of beer, brandy and absinthe which she consumed. Elsewhere he speaks of alcohol as the natural born enemy of syphilitics.

I will not detain you with citing any of the

<sup>3</sup> Renault, *Essai sur l'alcoholisme* thèse de Paris, 1874.

<sup>2</sup> Kreparsky (*Presse Med.*, July 20, 1908) Alcohol and the Human Body. London, 1908, p. 288.

<sup>4</sup> Fournier. *Jour. Cutan. and Genito-ur.* Dis., Vol. VII, 1889, p. 273.

many cases which I have seen illustrating these points, but may observe that they are confirmed by innumerable instances, both in public and private practice. So commonly is this the case that it seems to be the rare exception to find bad, ulcerative syphilis in those who have always been teetotalers. The most important direction to give to those who have acquired syphilis is that they shall totally abstain from all alcoholic and fermented beverages indefinitely; even long after the primary infection, alcohol may induce grave syphilitic or para-syphilitic affections. This is especially true in regard to late nervous diseases, as locomotor ataxia, poly-neuritis, paresis, etc., as Petrini,<sup>5</sup> Grothe<sup>6</sup> and others have shown.

In regard to the action of alcohol in producing or influencing badly other diseases in the skin, there are, in the experimental developments previously mentioned, many good reasons to expect this to be the case. Renault, already mentioned, includes most of them in his thesis, as follows: 1. "Because alcohol is eliminated by the skin; 2. Because a small dose produces general nervous excitation, and a large dose depression; 3. Because of its diminishing the amount of carbonic exhaled and lowering the temperature; and 4. Because of its tendency to produce fatty change in the tissues." Janin,<sup>7</sup> goes over much the same ground, and claims that "alcoholism, by its unaided power, is capable of evoking morbid cutaneous phenomena, for which, however, there must be some special constitutional predisposition. But these effects are seldom met with; and what we most frequently observe, and should always bear in mind, in respect to this condition, is the important part it performs in the maintenance and aggravation of pre-existing disease, to which it sometimes imparts a serious character."

Perhaps the most striking illustration of the effect of alcoholic drinks on the skin is found in the conditions with which all are familiar on the face. Beginning with the ordinary flushing, seen after over-indulgence in wine or alcoholics, which may be transient, we have the well known acne rosacea of continued drinkers, which after a while results in the permanent dilatation of the capillaries, seen so often especially in those exposed to the cold, as in drivers, seamen, and others. The reason why this occurs principally on the face is undoubtedly due to the paralyzing effect of the cold on cutaneous vessels greatly dilated by alcohol: with this continued excessive supply of blood there is often a more or less hypertrophy of tissue, which may cause an immense enlargement of the nose, rhinophyma.

But this redness and enlarged capillaries are not the only lesions on the face which we often

find in those who use alcoholic beverages, nor is it necessary to take the stronger liquors in order to have much eruption there. One of the worst cases of acne rosacea, with many papules and pustules, which I ever saw, was in a dealer in Moselle wine, who himself partook of it very freely. In this instance it could hardly be from any impurity or adulteration, as presumably he drank that which he imported himself; and, as he claimed not to be an immoderate drinker, the harmful effect was probably produced by metabolic changes fostered by the esters and other ingredients composing the wine, as well as the relatively small per cent. (7-10) of alcohol which this wine contains.

Quite another form of acne is often seen in those who drink ale and beer, which varies in alcoholic percentage from 2 to 8 per cent. Here there is more commonly the production of a pustular form of acne, often with large, indurated and sluggish masses, and often without much intervening redness. The occurrence of suppuration may be in part accounted for by one of the experimental developments already referred to, namely, that alcohol lessens the resistance power of the organism to infectious germs. Want of space prevents my presenting details of very many cases demonstrating the effect of alcohol on acne.

It is quite possible to minimize the influence of alcohol in producing these and some other diseases to be referred to, on the ground that the same lesions may often be observed in many who have never taken a drop of spiritous or fermented drink. But the same may be said in regard to any one causative influence, and it is only by wide experience and wise judgment that the influence of any special etiological factor can be determined. In the present instance the constant occurrence of a certain class of eruption in all beer drinkers, its continuance often under good treatment until the drinking habits are changed, and then its subsidence with relatively simple measures, would pretty clearly indicate an etiological connection.

In the all-common disease "eczema" we constantly see the baneful effects of alcoholic drinks, as has been recognized by many writers. Renault emphasizes this, and Janin gives in detail four cases of generalized eczema as typifying conditions precipitated or aggravated by alcoholism. Donovaro<sup>8</sup> describes carefully a case of chronic eczema on various portions of the body in the etiology of which alcohol played a conspicuous part.

In my own private practice I am constantly seeing what I recognize to be the evil effects of alcohol on eczema, but it is somewhat difficult to give briefly an exact idea of what is meant thereby, and the limits of this paper exclude the many illustrative cases which could be given. But many patients will recognize this themselves

<sup>5</sup> Petrini, cited in *Archiv. für Derm. und Syph.* Vol. 29, 1894, p. 136.

<sup>6</sup> Grothe, *Alcohol and Syph. in ihrer Beziehung zur progressive Paralysis*, Inaug. Dis. Rostock.

<sup>7</sup> Janin, *De l'infl. de l'alcoolisme sur le développement et l'évolution des affect. cutan.* Thèse de Paris, 1881.

<sup>8</sup> Donovaro, *Arch. für Derm. u. Syph.* Vol. 33, 1895, p. 214.

partially, and when it is made clear to them they are quite willing to forego the drinking in order to be cured. It can readily be understood how the cutaneous congestion produced by alcohol, and also the lowered nervous tone can operate unfavorably in eczema; time and again I have seen fresh attacks brought on by indulgence in alcoholic or fermented drinks, and repeatedly I have been unable to cure the disease until these have been absolutely abandoned. In one particularly obstinate case of eczema of the fingers in a gentleman, who could not believe that the moderate claret which he drank could influence the disease, the eruption persisted most unsatisfactorily; but when he abandoned the use of claret, after long holding out, the eruption disappeared under the same treatment as before. It is probable from what I have observed, that it is not so much the alcohol, which ranges from 6 to 12 per cent. and averages only 8, as it is from the acidity and irritating ingredients found in even fairly good claret. In cases of eczema where stronger alcoholic drinks are taken in excess, the eruption is apt to be pretty extensive, the surface much congested, with a serous or postular exudate, and much burning and itching. In eczemas which are caused or excited by the more moderate use of milder alcoholic beverages, the eruption is more localized and far less inflammatory in character; in other words it exhibits the characters of the eruption as caused by ordinary metabolic disturbances, which in this instance are induced by the particular beverage in question.

"Psoriasis" has been recorded by many as most unfavorably influenced by alcohol, it aggravating the eruption and causing it to itch, and being even capable of exciting fresh attacks, after long freedom from eruption. Renault gives a series of cases supporting the claim that alcohol causes a greater development of the disease and itching. Nardecchia<sup>9</sup> narrates three cases of psoriasis demonstrating the influence of alcohol on the appearance and entire course of the disease. According to him alcohol presents an important complication, favoring the development of severer forms of the eruption and rendering the treatment of the disease more difficult. Polotebnoff<sup>10</sup> in an extensive study of psoriasis states that alcoholism is most probably a very frequent cause for the development of psoriasis, and gives two striking cases. Nielsen<sup>11</sup> declares that chronic alcoholism can without doubt exercise a most unfavorable influence upon existing psoriasis, since the most extensive and most frequently returning eruptions are seen in heavy drinkers, and that it can cause an universal outbreak, or dermatitis exfoliativa. Also that the disappearance of the eruption will also follow quickly under treatment when alcohol is withheld. On

the other hand, White,<sup>12</sup> of Boston, at the American Dermatological Association, stated that in his opinion alcohol had no influence on the causation or course of the disease in general, but in exceptional inflammatory crises or types it becomes of temporary influence; while Drs. Jackson, Allen, and Robinson held the opposite opinion.

Personally there is not a doubt in my mind but that alcoholic beverages are of the very greatest importance in connection with psoriasis. Time and again both in public, and mainly in private practice, I have seen outbursts of the eruption following excesses in this direction, and in dozens of instances the eruption has been congested, inflamed and itchy while they were persisted in, and then yield wonderfully when all alcoholic or fermented drink were absolutely excluded, of this I could give any number of illustrative cases; so that I am not willing to treat a case of psoriasis in private practice unless this course will be followed.

Alcohol has also been reported as favoring other changes in the skin. Kæmpfer<sup>13</sup> records in full the case of a man who was a hard drinker, in whom two liqueur glasses of cognac brandy produced a diffused redness of the face, extending visibly backwards over the ears and congesting the oral mucous membrane, the pharynx being scarlet red; there was also great hyperæmia of the fundus of the eye and retinal vessels. The condition lasted half an hour, attended with slight rise of temperature, pulse 124, with pains in the head and a feeling of heat. The experiment was made many times, to see if the affection was caused by cognac, and each time the same phenomena occurred.

Renault devotes some attention to what others had noticed (Nobile Santo in 1841, and Lendet in 1867), and which Prof. Hardy endorsed, that alcohol can excite an eruption so strikingly like "pellagra" that it has been named pseudo-pellagra. The erythema of the exposed surfaces begins in the spring, resembling sunburn, and is followed by peeling which may last for weeks, or even months, until August or September; the skin darkens and becomes like parchment, and accidental lesions, pustules and fissures may appear.

Morrow,<sup>14</sup> in a letter from the Sandwich Islands described what is known as the "Ava" skin; the "ava" is a slightly narcotic, intoxicating drink made from the root of the ava or "Kava-Kava." Its irritant effects on the skin are manifest by the production of redness and dryness, with exfoliation of the surface in the form of white, branny scales. The skin is loose and wrinkled, from an apparent absorption of the subcutaneous layer of fat. In old ava drinkers the entire body becomes emaciated and the skin

<sup>12</sup> White, *Amer. Derm. Ass. Jour. Cutan and Genito-ur Dis.* Vol. XIV, 1896, p. 451.

<sup>13</sup> Kæmpfer, Cited in *Monatshefte für prak. Dermat.* Vol. II, 1891, p. 970.

<sup>14</sup> Morrow, *Jour. Cutan and Genito-ur. Dis.* Vol. VII, 1889, p. 188.

<sup>9</sup> Nardecchia, *Dermatologo Zeitschr.* Bd. VI, 1899, p. 536.

<sup>10</sup> Polotebnoff, *Monatshefte für prak. Dermatol.*

<sup>11</sup> Nielsen, *Monatshefte für prak. Dermatol.* Bd. XV, 1892, p. 330.

is covered with large scales, which on falling may leave ulcerated surfaces, resulting in permanent scars.

Oppenheimer<sup>15</sup> reports a case of relapsing "angio-neurotic œdema," mainly on the face and hands, in a young man, twenty-three years of age, exceedingly obstinate, worse in summer. The author claims that the eruption was due to the use of alcoholics; a relapse was observed after the patient had taken "a couple of glasses of whiskey and soda water." The only alcoholic beverage the patient could take with impunity was claret mixed with water. Mastermann<sup>16</sup> warns against the danger of the use of alcohol in those with phagedenic carbuncle.

Gaston<sup>17</sup> has described a peculiar "anæsthesia" occurring in alcoholic patients with "prurigo" and claims that one can almost certainly diagnose alcoholic intoxication from the anæsthesia of the parts affected. Together with violent itching night and day, but especially at night, with insomnia, nightmare, etc., there is a profound anæsthesia with irregular distribution. He attributed it more to the alcoholics containing aromatics, ethers, essences, such as absinthe, cordials, etc. He had observed it in both men and women.

Lemoine<sup>18</sup> describes a case exhibiting derangement of sensibility with analgesic superficial panaris, caused by alcohol irritating the nervous centres, and Lussana<sup>19</sup> writes of the paralyzing effect of alcohol on the cutaneous nerves.

It is thus seen, both from pharmacological experimentation and from clinical experience, that alcohol and the various compounds containing alcohol have very decided effects upon the skin, and that it is an agent to be by no means disregarded in connection with dermatoses of various kinds. For want of space I have not attempted to add much from my own experience, but I can abundantly confirm all that has been quoted from others and could give any number of illustrative instances. I am not prepared to say that it is always the direct effect of alcohol on the skin itself which influences skin lesions, although this is often a most important factor. In a goodly proportion of cases, however, I believe that it is the disturbing action of alcohol and other ingredients of what we know as alcoholic beverages, upon the general system, including all the organs which are concerned in nutrition, and upon the processes of metabolism. This appears to be the case because we are so constantly seeing practically the same cutaneous conditions arising from gross errors in eating and drinking of other than alcoholic beverages. Thus, acne in young girls who have never

touched even wine, will often be kept up by the free taking of milk in connection with food, and will then cease, under the same treatment as before, when once this error is corrected. But distilled and fermented drinks are far greater factors in connection with many troubles of the skin than many are disposed to admit.

Another aspect of the effects of alcohol as observed in dermatology relates to its local use therapeutically, concerning which there have been many reports which cannot be long dwelt on. Dating back even to Scriptural times, we learn of the treatment of wounds by means of alcohol or its compounds; thus, "pouring in wine and oil" was a common practice in ancient times. We know that even up to quite a recent period the Hebrew operator in circumcision would staunch the hemorrhage by taking a mouthful of wine and holding the bleeding organ in the mouth for a short while. (It was from this practice that many cases of circumcision chancre have occurred in the past.)

Various suggestions have been made from time to time in regard to the local use of alcohol to the skin and it has attained a pretty definite position of usefulness in connection with antiseptic in surgery: its bactericidal qualities are now well recognized. Its antidotal action to carbolic acid is too well known to comment on, and many an otherwise bad burn of the skin from carbolic has been averted by the prompt application of alcohol.

Wilson<sup>20</sup> called attention to the value of alcohol as a refrigerant for subduing the heat and burning of local inflammation, especially in a diluted form as an evaporating or cooling lotion. Alcohol is also of value in various combinations for application to the skin and scalp.

Salzwedel<sup>21</sup> advises alcoholic applications in phlegmonous and similar inflammations as follows: After cleansing with ether, thick layers of cotton, saturated with 90 per cent. alcohol are laid on the part and covered with impermeable material, perforated so as to hinder but not to completely prevent evaporation. He claims good results, the fever abating and suppuration being materially quickened.

Heuss<sup>22</sup> recommends compresses with alcohol in a variety of inflammatory processes, sycosis, furunculosis, indolent ulcers, whitlow, etc. He uses 6-8 folds of gauze wet in a 95 per cent. alcohol, with an impermeable dressing over it, and claims a quieting, softening, and antiphlogistic action better than with any other dressing. Romme<sup>23</sup> endorses all that Salzwedel, Schmidt, Loew, and Heuss have written on the subject, and believes that if applied early it allays inflammation in the subcutaneous tissue and prevents

<sup>15</sup> Oppenheimer, Cited in *Jour. Cutan. and Genito-ur. Dis.* Vol. XVI, 1896, p. 122.

<sup>16</sup> Mastermann, Cited in *Monatsh für Dermat.* Vol. 4, 1885, p. 272.

<sup>17</sup> Gaston, *Ann. de Derm. et de Syph.* 3 serie Vol. X, 1899, p. 970.

<sup>18</sup> Lemoine, Cited in *Giorn. Ital. dell Mal. ven. e della pelle.*, 1891, p. 309.

<sup>19</sup> Lussana, Cited in *Gior. Ital. dell Mal. ven. e della pelle.*, 1907, p. 384.

<sup>20</sup> Wilson, *Journal of Cutaneous Medicine*, Vol. 2, 1868, p. 121.

<sup>21</sup> Salzwedel, Cited in *Monstsh. für prak. Dermat.*, Vol. XXI, 1895, p. 98.

<sup>22</sup> Heuss, Cited in *Monstsh. für prak. Dermat.*, Vol. XXVIII, 1899, p. 58.

<sup>23</sup> Romme, Cited in *Gior. Ital. delle Mal. ven. e della pelle.*, 1898, p. 782.

the production of pus; when used later it favors its pointing in a good place. In addition to its serving as a moist dressing, he believes that alcohol also acts favorably by virtue of its hygroscopic powers.

Kaufmann,<sup>24</sup> collecting together 52 writings concerning the external use of alcoholic preparations, shows that the method which Salzwedel had brought forward was one of great antiquity, and that alcohol had long played a conspicuous part in local medication, from its powers as a deodorizer.

Sswekjew<sup>25</sup> further endorses the method of using alcohol compresses in various inflammatory processes of the skin and subcutaneous tissue, mentioning the work of Lanz and Hebra, in this connection.

Albert Kaiser<sup>26</sup> treated 93 cases of various inflammatory affections with alcohol dressings, and reports that nothing better could be desired. He uses a 94 per cent. alcohol on compresses of a peculiar kind made by a German firm, covered with an impermeable dressing; the part is first freed from all fatty matter by means of benzine freed from all fatty matter by means of benzin and alcohol.

Unna<sup>27</sup> asserts that as far back as 1882 the introduction of the alcohol spray exerted a noteworthy influence in the treatment of eczema. As the effects of the latter is transient, however, he spent some years in producing a permanent alcohol dressing, having used the ordinary evaporating methods and those with impermeable dressing. The composition which he recommends is R. Stearate of soda 6, Glycerin 2.5 Alcohol add 100. This can be used where a bandage is impracticable, has high bactericidal powers and is free from irritant action.

Lauder Brunton<sup>28</sup> states that the application of absolute alcohol will check the itching in pruritus ani.

Dupas<sup>29</sup> advises a 90 per cent. alcohol for the treatment of herpes, as Leloir his master, had already done in 1885. He claims that in the erythematous stage the eruption disappears in a few hours, and when it has reached the stage of vesication it yields in a few days; not only was this used by Leloir in febrile herpes, but it was found also effective in herpes-zoster. Later Leloir advises the addition of a small proportion of carbolic acid, which lessened even more the burning sensation and pain. The application is made by pads of cotton frequently renewed during the day. He brings forward some very convincing cases in support of his views.

Hebra junior<sup>30</sup> reported at the Vienna Derma-

tological Society the treatment of six cases of lupus erythematosus by means of very frequent applications of alcohol, 40-50 times a day, of which five cases were cured. Kohn, at the same meeting, reported the case of a 23-year-old girl, which he had treated in this way with brilliant results. Kaposi and Neumann endorsed the method, recalling that the elder Hebra treated the disease with a tincture of green soap.

Cantoni,<sup>31</sup> reported the cure of favus by continued applications of rectified spirit. He claims that the alcohol penetrating the epidermis acts as an energetic parasiticide. This would seem doubtful in view of the fact that alcoholic solutions of mercury, etc., are often used without any very special brilliant results.

Finally, as an illustration of what has been attempted with alcohol we may mention that Abrahams<sup>32</sup> reports the treatment of acne rosacea with subcutaneous injections of 95 per cent. alcohol, 20-30 drops, repeated at the most three times a week. He claims that there was a brief anæmia produced by the injection, followed for several hours by a hyperæmia, by which obliteration of the dilated vessels was accomplished, but only after two or three months. It is questionable if others will endorse such a treatment.

#### SOME REMARKS ON ANAEMIA.\*

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THIS condition is defined by Osler as "A reduction in the amount of the blood, as a whole, or of its red corpuscles, or of certain of its more important constituents, as albumin or hæmoglobin."

Practically, it is only with a reduction in either the red cells or the amount of hæmoglobin, or both, with which we are concerned.

Anæmia—in any of its forms—represents the result of a greater or less degree of injury to the blood-forming organs.

Along with the deficiency in the number of the red cells goes a loss of the Hb. content. Cabot says there can be no anæmia present if there is no loss of Hb.; and Emery, an English author, also emphasizes this point in a recent text by him on Hæmatology.

From the appearance alone of the patient we cannot assume the presence of an anæmia. The condition of the blood must first be determined. If there is no loss in Hb., we can definitely say there is no anæmia present.

There are many conditions in which, from the pallor of the skin or mucous membranes, we are hastily led to assume that anæmia is present; such a condition is normal in many healthy people.

<sup>24</sup> Kaufmann, Cited in *Monstsh. für prak. Dermat.*, Vol. XXXVI, 1903, p. 214.

<sup>25</sup> Sswekjew, Cited in *Monstsh. für prak. Dermat.*, Vol. XXXVII, 1903, p. 58.

<sup>26</sup> Albert Kaiser, Cited in *Monstsh. für prak. Dermat.*, XXXIX, 1904, p. 552.

<sup>27</sup> Unna, *Monstsh. für prak. Dermat.*, Vol. XXI, 1900, p. 513.

<sup>28</sup> Lauder Brunton, *Lectures on the Action of Medicines.* MacMillan & Co., 1903, p. 153.

<sup>29</sup> Dupas, *British Journal of Dermatology*, Vol. 3, 1891, p. 269.

<sup>30</sup> Hebra *Archiv. für Dermat. und Syph.*, Vol. 47, 1899, p. 309.

<sup>31</sup> Cantoni, Cited in *Amer. Jour. Syph. and Dermat.*, Vol. I, 1870, p. 280.

<sup>32</sup> Abrahams, Cited in *Archiv. für Dermat. und Syph.*, Vol. 40, 1897, p. 409.

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An article in the *Berliner Klinische Wochenschrift* for 1907, by Strauss, calls attention to certain false anæmias. He refers the existing pallor to a lessened transparency of the skin, or lessened filling of the blood vessels, and mentions its occurrence in cases of arterio-sclerosis and in conditions where we have a lessened capacity of the superficial blood vessels in incipient tuberculosis and some gastro-intestinal troubles. Neurastheniacs likewise often show a pallor, but my experience in blood-counts on these patients have often as not failed to show any anæmia present.

Usage has sanctioned the separating of all anæmias into two groups. Primary or idiopathic anæmias, viz: Those for which we can discover no determining cause, and secondary, or symptomatic anæmias, viz: Those which are referable to pre-existing disease, or unhygienic methods of living.

Of course, the majority of all anæmias come under the second class, and as our clinical knowledge grows, we can increase this class at the expense of the first.

It follows then, in determining which class of anæmia is present, all clinical facts that can be gathered together must be considered, and the patient's previous history and the results of physical examination are just as important as the examination of the blood itself. Moreover, we must always remember that the type of anæmia cannot always be positively differentiated from the blood picture alone, as will be shown later.

A consideration of the classes of secondary anæmias shows them to be grouped into four (4) principal divisions. (This arrangement is taken from Osler's text-book.)

A. Anæmia from hemorrhage, either sudden and profuse, or slight and prolonged.

B. Anæmia due to long continued drain on the albuminous constituent of the blood, as chronic nephritis, malignant tumor, sepsis.

C. Anæmia from inanition, due to faulty food supply, or to conditions interfering with digestion or assimilation. The anæmias, the result of poor hygiene, are placed under this head.

D. Toxic anæmias, due to certain chemical poisons, as lead, nitro-benzol or mercury, or to organic poisons, generated in the system by the causative factors of syphilis or malaria. I should like to add to this group those anæmias the result of the growth within the body of the tubercle bacillus; also certain intestinal parasites.

*Blood Picture in Secondary Anaemias.*—There is a wide variation in the number of red cells at times. The loss is very slight at other times. The count may be as low as 1,000,000; usually the number ranges between 2,000,000 and 4,000,000. The Hb. content is reduced usually proportionately to the loss in red cells, thus leaving the color index approximately normal, but at times the Hb. falls faster than the red cells, or vice versa.

The white cells are increased as a rule, although this increase is often slight. A relative increase of the polymorphonuclears is seen on examination of the fresh or stained specimen. The majority of the red cells are seen to be smaller in size than normal. They are pale, owing to the reduced Hb. Changes in shape are rarely marked, but a few pear, or dumb-bell shaped cells can be seen. In very severe cases there may be some granular degeneration and faulty staining, but this is usually slight. If nucleated red cells are present, they are usually normoblasts, or the small microblasts.

Recent studies show that in some very severe secondary anæmias a blood picture may closely mimic that of pernicious anæmia; so that a very careful study of the case and numerous blood examinations must be made before the diagnosis can be determined.

*Primary or Idiopathic Anaemias.*—There are two great divisions of this class: Chlorosis and Pernicious progressive anæmia. A rare type of pernicious anæmia, known as aplastic anæmia is recognized; also a form resembling pernicious anæmia, in the red cell changes, occurring during myelogenous leucæmia. This is known as myelophthisic anæmia. As both these forms are rare, no further mention of them will be made in this paper.

Since the causative factor of these anæmias, at times, is unknown, they are sometimes referred to as cryptogenic anæmias.

The more careful study which these conditions are now receiving show, however, that the designation primary is in but a few cases strictly applicable, since more and more conditions in which the blood picture mimics that of true pernicious anæmia or chlorosis are being traced back to some antecedent and often removable cause; thus transferring the cases to the class of secondary anæmias.

*Chlorosis.*—This is the less common and fatal type. That it is becoming less common in this country is the opinion of many hæmatologists. Cabot believes it is disappearing. He has been able to collect barely 500 cases of chlorosis from hospital records, which during the same period of time have shown over 900 cases of pernicious anæmia.

At the laboratory of the Rochester City Hospital our records show 11 cases of pernicious anæmia in the past eight years, with no cases of chlorosis. My private records for about five years show eight cases of pernicious anæmia and none of chlorosis. St. Mary's Hospital in Rochester can show, in five years, five cases of pernicious anæmia, and it is interesting that in one of these cases the diagnosis of chlorosis was made six months before the blood definitely showed pernicious anæmia.

Chlorosis is, as we know, confined to young girls about the age of puberty. It is much more common, for some reason, in house servants;

about ten cases to one, as compared with factory hands is the ratio shown in the Massachusetts General Reports. Most of the cases are in newly-landed immigrant girls, usually Irish.

No satisfactory pathology has ever been given. Virchow suggested cardiac and arterial hypoplasia. Gastroptosis and undeveloped sexual organs have been mentioned, but these are more likely results. Faecal stagnation with consequent auto-intoxication has likewise been suggested, but there are infinitely more constipated than chlorotic girls. In the case of immigrant girls, nostalgia and a complete change of the mode of life may add a determining factor.

Cabot and others believe this disease to be secondary to unrecognized incipient tuberculosis, since many of these cases have afterwards developed tuberculosis, a thought which suggests the diagnostic use of some of the tuberculin reaction tests.

If this conception of the nature of chlorosis is true, it throws further doubts on the essential primary nature of this disease.

The symptoms—both objective and subjective—are well known, so I will not go into them here, but would like to remark that in many ways they are strikingly like those noted by Wright and Ross of London in a number of cases benefited by calcium lactate.

Dr. Ross tells me that some of these were chlorotics. They determined a diminished coagulability of the blood to be present.

The blood picture in chlorosis is usually very distinctive, the striking feature being an entirely disproportionate loss of Hb. as compared with the loss of red cells. As a result we usually meet with a low color index.

There is practically no change in the white cells, but a slight relative lymphocytosis may be noticed. To me this would suggest a careful search for tuberculosis.

The red cells are usually normal in size, but the centers show marked pallor, due to the loss of Hb. Irregularities in size, shape and staining reaction are only marked in severe cases. Nucleated red cells of the small size, or microblasts, rarely a normoblast may be present. Large red cells, either non-nucleated, the macrocytes or nucleated, the megaloblasts do not belong to this type of anæmia.

The finding of a strikingly low color index has usually been considered sufficient to establish a diagnosis of chlorosis, but in view of the fact that tuberculosis so often follows in these cases, we would be wiser to remember that this so-called disease is often but a part of the symptom complex of tuberculosis.

*Pernicious Anæmia.*—A chronic, usually fatal disease, characterized by periods of time, during which marked clinical improvement and regeneration of the blood may be manifest, but relapses always occur.

Some time ago, while studying one of my

cases, I sent a blood slide to one of the leading clinical microscopists of the country. I was somewhat startled, but not defeated, to receive this report from him—"No signs of pernicious anæmia." At once I sent another slide, taken at an earlier stage of the disease. On this slide he reported—"Diagnosis justified." A few months later the blood had reverted to the characteristic state and the man died.

As has been already stated in this paper, we should only call those cases pernicious anæmia when no cause that can give rise to this blood state can be found after the most exhausting study of the case. This should include gastric analyses, as well as examination of the stools for parasites, ova or occult blood.

That this is not a rare disease, contrary to the earlier teachings, seems to be the opinion of the best investigators. A marked increase of this disease in the rural districts is being reported. While chlorosis is invariably a disease of young girls, the period of incidence of pernicious anæmia is usually the fifth decade, and both sexes are about equally affected.

A consideration of the usually suggested causes seems to show that there is no necessary connection in most cases, while in others the blood picture may more properly be interpreted as a result of a preceeding disease than as a primary condition.

Herter, in his studies of intestinal bacteria, has found in some cases of pernicious anæmia marked intestinal putrefaction, associated with the presence of bacillus mucosus capsulatus. This fact will explain the value of intestinal irrigation as a therapeutic measure.

Certainly there is no intestinal putrefaction in many cases, if the absence of indican from the urine can be taken as the criterion; and in the cases I have studied I have more often than not failed to find indican.

In the *British Medical Journal*, under date of November 9, 1907, there is a most valuable article on this subject by Hunter, which should be read by all interested. In it he defines pernicious anæmia as a definite hæmolytic specific and infective disease, calling attention to its marked periodicity and sudden relapses with pronounced hæmolysis. Marked stress is laid upon previous gastric, oral or gastro-intestinal disturbances, and especially upon the history of a sore tongue. These he believes give the starting point of the infective agent. There is usually history of exposure to drain poison, which may explain the prevalence of the disease in rural districts.

In one of my cases the appearance of the disease followed an attack of tonsillitis.

The most important point in this history is the gradual and definite onset in a previously well person nearing middle life.

Keeping in mind the marked tendency to remission, a period of seeming recovery must not prejudice the diagnosis. I have now one patient

under observation whose red count has risen in six months from 1,215,000 to 2,750,000 cells, her Hb. from 50 per cent. to 70 per cent., so that the index at last count was 1.1 as against 1.0 at first, but the stained film tells the story. Curiously there are twice as many megaloblasts present as at the first count. My conclusions are that about three years is the extreme limit of life in the cases of pernicious anæmia.

As opposed to chlorosis, we know that pernicious anæmia has a fairly definite pathology. There are the orange yellow tint of the muscles and subcutaneous fat, patchy areas of internal hæmorrhage and metamorphosis of the marrow of the long bones, which explains the appearance in the blood stream of certain leucocytes, the myelocytes, which normally remain in the bone marrow. But this appearance of myelocytes in the circulating blood is by no means specific. In many cases also there is a sclerosis of the posterior columns of the cord which accounts for certain nervous phenomena. Marked deposit of blood pigment in the liver is also seen.

While pernicious anæmia has a fairly definite blood picture, subject, of course, to the periods of improvement, it is well to reiterate that certain other diseases may closely simulate this picture.

The red cells show no pallor; rather an excess of color due to increased Hb. content, as would be shown by the heightened color index. There is a striking tendency to oversized and oval forms. Marked variations in size and shape are more uniformly met with. There is abnormal staining of the red cells. Megaloblasts usually exceed in numbers the other nucleated red cells. These nucleated red cells, which are normal in the fetal blood, show the tax put upon the blood forming organs to turn out sufficient blood to meet the extreme hæmolysis.

The number of the red cells is considerably reduced at times to even 600,000, but about 2,000,000 is more often the average, except during remissions, when they may be considerably above this number. Most striking and suggestive is the fact that the Hb. is not reduced proportionately; therefore, giving a color index above normal.

The leucocytes are usually normal in numbers or even reduced. There is a relative lymphocytosis, and during remissions the relative numbers of the polymorphonuclear cells and the eosinophiles are increased. Myelocytes are present in varying numbers.

There are other diseases which, as suggested, may closely simulate pernicious anæmia in the blood picture. Among these are gastric cancer, cirrhosis of the liver, one of my cases giving a leucopænia of 3,400 white cells twice, with more megaloblasts than normoblasts, but the other elements of the blood picture were lacking and the clinical course was not at all similar to pernicious anæmia, Addison's disease.

Certain intestinal parasites, such as *boitrocephalus latus*, or the hook-worm, are said to

cause confusion. I reported a case of *boitrocephalus* tape-worm, having a blood-count of 4,275,000 reds, with 95 per cent. Hb.

Hook-worms, while causing an extreme anæmia, usually give rise to a pronounced eosinophilia.

In all doubtful cases, however, a painstaking study of the case and a careful study of the blood will help clear up the diagnosis. Especially should we remember that retinal hæmorrhages in doubtful cases speak strongly for pernicious anæmia.

The diagnosis of the type of anæmia present cannot, in many instances, be made from either the clinical study of the case, or the blood examination alone. It is necessary to consider them both together, often to make repeated blood examinations, and even then it will not always be easy to make the decision.

### SPLENO-MEDULLARY LEUKEMIA.\*

ITS TREATMENT BY ROENTGEN THERAPY,  
WITH REPORT OF A CASE,

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HEMATOLOGICAL FINDINGS, BY L. A. VAN WAGNER, M.D.,  
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*Mr. President, Etc.*

THIS paper is presented because the ultimate result was a failure after the treatments had promised a most brilliant success, because these were based upon and checked up by the hematological findings and it is offered in the hope that it may be of service to others working in this field and possibly of benefit to those who are suffering from this usually fatal malady. Notwithstanding the disappointment at the end perhaps the failure may bear sounder fruit than if success had crowned the work. It is reasonable to infer, when later is reviewed the microscopic analysis of the blood, that the technique of the Roentgen treatment was correct, and incidentally it may be emphasized that proper technique is an all essential factor in these cases, and equally is it certain that from an almost moribund condition the patient was symptomatically cured and every symptom, both objective and subjective, made to disappear. She was restored to apparent health, but about four months after discontinuing treatment, suffered a relapse. It is this relapse that gives us food for thought. Could this have been prevented by longer or by different Roentgen treatments or is the disease essentially malignant and incurable? In view of the fact that, from an initial count of 580,000 leucocytes to the cubic millimeter and a myelocyte percentage of 25 in the differential, the blood was made normal in every particular it is reasonable to assume that it might have been kept so. The one question to be answered is: How have we any means of

\* Read before the Medical Society of the State of New York, at Albany, January 25, 1910.



knowing when the patient is permanently cured? Apparently not in the examination of the blood, and therefore we must seek other sources of information or by empiric methods try to reach the solution of one thing; however, I am fully convinced that in this disease drugs are useless and that if anything can hold it in check it is X-radiation. Pathologists have practically agreed that the primary lesion of this disease lies in the bone-marrow. The essential changes are a pronounced hyperplasia of the red marrow, a marked hyperæmia and hyperplastic cellular tissue is found where normally should be fat. Histologically are found large numbers of nucleated erythrocytes, numerous cells with eosinophilic granules, both small polynuclear forms and almost giant mononuclear elements. The principal cells present are the myelocytes,—large cells with neutrophilic granulations,—similar to those found in blood. So far as the changes which take place in the spleen, liver and other organs it is practically certain that these are secondary and are effects, not causes. Histologically the picture is that of a myeloid transformation of the normal structure. It is impossible to say with certainty what is the nature of the processes in this disease, but the progress, the metastasis, the histological feature and the clinical analogies point to its relation with malignant neoplastic processes. The green cancer or chloroma is, according to Dock, "a lymphomatous process similar in its classical features to leukemia and pseudo-leukemia." The prognosis is bad. Osler says that recovery occasionally occurs. He gives no statistics, but, personally, I doubt if it is over one per cent. under treatment by drugs alone. Of these only one may be mentioned: Arsenic given in increasing doses, and this is only of value in combating the anæmia, which is usually an accompaniment of this disease. That it has any curative action, *per se*, I greatly doubt. The clinical picture, once the disease is established, is too obvious to more than mention. The pallor, the dyspnæa, the enlarged spleen, and the general malaise are, in brief, its distinguishing features, but a blood examination is necessary to differentiate it from splenic anæmia or pseudo-leukemia. The hematological findings, which are hereunto appended, were made by Dr. L. A. Van Wagner, of Sherburne, my very able co-worker in this case. He has devoted much time to this work and his reports may be regarded as accurate. The case under consideration was referred to me by Dr. A. H. Evans, of Guilford, with the diagnosis made. The leucocyte count was 580,000,—no other findings reported at this time. The patient was a woman, native American, white, married, nullipara, aged 51, about 5 feet 3 inches tall, weight less than 100 pounds. She was pallid, emaciated, dyspnœic and complained of a constant dragging sensation in the left hypochondrium, exhaustion, nausea, and griping pains in the bowels. Appetite poor, digestion bad, sleep restless and broken. Physical examination re-

vealed a marked anæmic murmur. Heart's action feeble. The urine was of low specific gravity and contained albumin and indican. She was running a daily temperature of about 101. The spleen extended on the left side to the crest of the ilium and four inches beyond the median line to the right. It was hard and not tender. She was given her first Roentgen treatment on January 22, 1909. This was repeated three times a week until March 8th. Thereafter they were given daily—five days in the week—up to September 1st. In all 140 treatments were given. No untoward effects followed the radiation except when a tentative dose was applied, during the third week of treatment, to the lower edge of the spleen. From this there developed within twelve hours a mild toxæmia with greater lassitude than usual, a moderate diarrhœa and marked elevation of temperature. The warning was heeded and the rays were not applied again over the spleen until it had become markedly reduced in size from the radiations applied to the bones. The patient showed a marked improvement in her symptoms almost from the first week. The spleen rapidly became so reduced in size that it was no longer palpable. The appetite returned, sleep became natural and refreshing. The bowels returned to normal, the urine was freed from albumin, the heart murmur disappeared, the dyspnœa vanished, the temperature dropped, the cheeks filled out and became rosy in color and euphoria succeeded to the exhaustion and malaise. In a word, the patient was well, so far as any symptoms, objective or subjective were concerned. The foregoing case-history and progress have been made purposely brief that I may devote greater space to what I believe to be the crux of the whole matter, namely, the technique of the Roentgen therapy. There are as yet no means of accurately measuring the dosage of this agent. We can but approximately guess at it by knowing the time-factor, the tube-vacuum and the milli-amperage going into the tube. The first and last are constant, but the behavior of the tube no man can predicate. With the same vacuum the output of the actinic ray may vary immensely and an old tube does not behave like a new one. The inductance, the interruptance, the wattage must be properly correlated to get the tube in tune with the generator. The electrical factors vary so greatly that uniformity in treatment become next to impossible and the imp of the perverse seems to have fixed his home in the X-ray tube. Not only must the actinic value of the emergent ray be high, but so also must be the penetration. Equally futile is a high tube on a superficial disease or one of low-vacuum on one that is deep-seated. With an agent so powerful that it can produce a leucopenia or a poikilocytosis the question of technique becomes of all importance. Not only am I convinced that X-radiation is the only treatment that offers any hope in this disease, but I am practically sure that the

bulk of our failures are due to our methods and not to the agent employed. The details of treatment are many and all must be given proper attention. They are, the site of the exposures, the length of time for each, their frequency and the total duration of treatment. The tube should by preference be an old one which will back up a spark gap of four inches. The vacuum should be steady and show no tendency to fall during the treatment. The tube should be placed about 18 inches from the part to be rayed. The rays should fall upon a limited area of the body and a ray filter should be interposed to cut out any soft rays emanating from the tube. The body should be mapped out into sections. 1st. From the knees to the feet. 2d. Lower halves of the thighs. 3d. Upper halves of thighs and right side of pelvis. 4th. Corresponding area on the other side, but avoiding the spleen during the earlier treatments. 5th and 6th. Right and left sides of the shoulders and thorax. Each of these regions are given three successive treatments of fifteen minutes each daily. The clothing need not be removed from the body. Under no circumstances should radiation be applied to the spleen until the diminished size and the falling myelocyte and leucocyte count show us that we are getting control of the situation. Even then it must be approached with caution and it is better that at first it be rayed through the back so as to include the pelvis and the lumbar vertebræ. To attack it directly at first is to invite a toxæmia, which may be fatal and is always disastrous. Also, it is unreasonable to treat an effect when the cause can be reached. In treating these cases we are between the devil and the deep sea. The Roentgen ray will stimulate, inhibit or destroy cellular activity according as it is applied. If we ray too little we increase leucocytosis, if too much leucopenia is induced. If we ray aright we increase the hemoglobin content, if too much we get hemolysis. Up to the present we have one guide post only the condition of the blood. Frequently during the treatments total and differential blood counts should be made, if possible once a week, surely at least once a month. The leucocyte count which will rise as each new area is exposed will usually come down on the third treatment; if not, another should be given to the same region. As the treatment progresses there will be a steady drop in the leucocyte count, a rise in the erythrocyte, an increase in the hemoglobin content and a diminution in the number of the myelocytes. The latter is the most important indication of all. It is not infrequent that the leucocyte count will remain relatively high, but the myelocyte count must finally be zero if the patient is to be cured. How long shall the daily treatments be continued? At what point shall they be intermitted? When shall treatment be finally stopped and what shall the subsequent management of cases which are symptomatically cured? The answer to these is the most important part of all. As to the first: Treatment

should be given daily and continued until the myelocytes are entirely driven from the blood and the leucocyte count has fallen relatively low. At this critical period the interval between treatments may be lengthened and three a week given for a month, the blood status being carefully watched. If the myelocytes are still absent the patient may be given three treatments on successive days once in the month, and at this time a blood count also taken. If after three months there still remains no trace of a myelocyte the patient may be finally dismissed, but for a long time watch must be kept on the blood to determine whether treatments should be resumed for a time. It is here where the element of uncertainty enters. During active treatment there is a reasonable certainty in the indications. Too rapid a leucocyte drop or a poikilocytosis indicates too large a dosage of the ray and calls, not for a lessened frequency, but for a shorter time exposure. The patient when dismissed from active treatment should report at frequent intervals thereafter for re-examinations for relapses when fully established do not respond to renewed treatment so favorably as do primary cases. In conclusion, what can we truthfully offer to our patients by Roentgen therapy in this disease? It has showed a percentage of 8.7 of permanent cures, where drugs or natural processes show probably about 1. It will bring about a symptomatic cure, lasting for a longer or shorter time, in 33 per cent. and an improvement in an equal number. About 25 per cent. fail to react favorably. These statistics are gathered from the reports of many operators, whose technique I do not know. This is the present-day status of Roentgen therapy in this particular disease. We know its histology, but not its pathology. We do not know at all the powerful agent which Roentgen has put into our hands, and he will be a wise man indeed who can take from its popular name the prefix of the unknown quantity. We can with it alter cellular activity at will, we cannot always control its action, but I am among those who see in the coming years its larger usefulness in skillful hands and with added knowledge, cures where now we fail.

*Homer E. Smith, M. D.*

DEAR DOCTOR.—In compliance with your request the following summary of hematological findings, in the case of Mrs. Humphrey, is submitted.

The first examination made March 22, 1909, was a differential count only, the spread having been forwarded by mail, and resulted in percentages as follows: Polynuclear 30.28. Small lymphocytes 5.63; large lymphocytes 41.62. Transitional 44.4. Eosinophiles 1.39. Myelocytes 24.01. Erythroblasts 8. Microblasts 2. Poikilocytosis very marked.

May 27th a more complete blood examination was made, the improved condition of the patient enabling her to visit my office, with the follow-

ing results: Red cells 2,984,087. Leucocytes 306,282, differentiated thus: Polynuclear 54.62. Lymphocytes, small 7.65; large lymphocytes 31.85. Transitional 4.54. Eosinophiles 1.82. Myelocytes 17.72. Erythroblasts 4. Microblasts 3. Poikilocytosis not as marked. Hemoglobin content 45.

Average of two counts made July 31st. Leucocytes 8.859. Polynuclear 74.03. Eosinophiles 4.07. Myelocytes 7.46. Erythroblasts 2. Microblasts seen while counting 1. Hemoglobin 87.

The great variation in the size and shape of the erythrocytes as shown in the previous examinations is no longer observed.

An examination made August 31st, gave the following results: Red cells 3,792,000. Leucocytes 10,030. Small lymphocytes 16.3; large lymphocytes 11.8. Polynuclear 74.20. Eosinophiles 2.4. Myelocytes 0.46. Hemoglobin 91.

October 19th a normal blood picture was observed as indicated by the following report: Red cells 4,319,256. Leucocytes 7,928. Small lymphocytes 20.3; large lymphocytes 7.09. Transitional 2.23. Polynuclear 69.87, of which a large percentage were neutrophile. Eosinophile 1.8. Hemoglobin 97.

December 21st a blood test, heralding an impending relapse resulted thus: Red cells 3,047,132. Leucocytes 337,436. Polynuclear 61.33. Small lymphocytes 6.99; large lymphocytes 28.62. Transitional 9.14. Eosinophiles 3.9. Myelocytes 22.32, chiefly neutrophilic. Hemoglobin 62.

In arriving at the percentages of the various types of leucocytes, embodied in this report, with slight variations, 500 cells were counted.

## THE UNITED STATES PHARMACOPOEIA.\*

### ITS PRESENT STATUS AND THE COMING REVISION.

By **ELI H. LONG, M.D.**

**N**EVER before in its history has so much attention been focused upon the United States Pharmacopœia as at the present time. The book is coming into deserved recognition as our standard of drugs and preparations, and it is safe to predict that the convention in May next, to authorize and direct its ninth decennial revision, will be by far the largest Pharmacopœial convention ever held. Medical men will probably predominate in that gathering, which was not the case in the 1900 convention. Thus the normal relations of factors in its revision is likely to be restored. As this society was instrumental in carrying into effect the original plan of Dr. Spaulding ninety-two years ago, which led to the formation and adoption of the Pharmacopœia, and being entitled to representation in the coming convention, it is proper for us

to give some attention to the book as to its present status and needed improvements.

At the outset we should understand that the United States Pharmacopœia is primarily a book of standards, and its scope, by reason of that fact, is quite definitely fixed. It has never been a book of practical daily use to the physician and there are difficulties in the way of its becoming such, owing to the limitations of its scope. It has, accordingly, failed of appreciation by the medical profession, and it has even been neglected in the teaching of therapeutics. We have had to atone for this neglect in the humiliation of a threatened domination of our therapeutics by commercialism. But the tide has turned and the cry now is: "Back to the Pharmacopœia." And that is the natural and safe basis of reform. For, with the pharmacopœial convention made up of delegates from the colleges of medicine and pharmacy, from the incorporated state and national associations of physicians and pharmacists, and from the army, navy and marine hospital service, the influence of commercialism in its revision and promulgation can be absolutely prevented.

For the work as it stands to-day there is little need of apology. A higher appreciation awaits upon a better knowledge of its resources, and by familiarity we may find that it more nearly meets our needs than most physicians have supposed. And as thoughtful men are seeing in its neglect one great cause for the easy inroads of commercialism, so any lasting reform must restore the Pharmacopœia to its place in the teaching of therapeutics in our medical schools. We must not be led to regard the book as antiquated, for any such change is unjust to its revisers and raises the question of the critic's ability to judge from familiarity with its contents. And it must not be supposed that the work has shown no improvement while neglected by the medical profession. The fact is, that since the profession of pharmacy has co-operated so largely in its revisions it has progressed more rapidly than before. This becomes evident by even a cursory comparison of the editions up to 1880 with those from that year to the present.

By far the most important improvement of these years has been the standardization of drugs and preparations. This advance is particularly seen in the last revision; for, while the preceding volume (1890) gave assay processes for the standardization of cinchona, opium, extract and tincture of opium and extract of nux vomica (5 articles), the present volume contains assay processes for 47 different substances and, in addition, 33 applied to their preparations. This great advance was directed by the 1900 convention, in which pharmacists predominated. The work of standardization was peculiarly within their province and they used their opportunity to make our Pharmacopœia a standard, not only for the identity of drugs and the compounding of preparations, but, what is of greater importance, a stand-

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ard of medicinal strength for most of our important drugs. The present decade is the first in which we can demand of our pharmacist that the drug or preparation which he dispenses upon our prescription shall contain a certain amount of active principle, this applying to nearly every drug whose essential principle is recognizable. We cannot over estimate the importance of this feature, as we realize that reliability of action must depend upon the presence of active constituents in proper amount. Thus it appears that we are indebted to the co-operation of pharmacy in larger measure than we have realized, and if we proceed to "recapture" the Pharmacopœia, as someone has suggested, we shall find it a better book for having been captured. By one who attended the two last conventions and who has studied the book in its last three revisions, it cannot be believed that such a vast improvement could have occurred without the aid of the teachers in the colleges of pharmacy.

Standardization has prepared the way for real advance in rational and scientific employment of drugs, for it insures, beyond any previous possibility, the reliability of our medicines. Therefore, as we turn in disgust and discouragement from the spectacle of degradation of therapeutics by commercial interests, we may find the Pharmacopœia a mine of resource to aid toward a better day,—one of the greater definiteness and reliability in our drug therapeutics.

Another point of progress is the use of the metric system, which was adopted exclusively in the revision of 1890, thus giving a long lead to the medical profession in the use of this simple decimal system. It is not to our credit that we are so slow in adopting it in our practical prescribing.

With the last revision the standard character of the book was enhanced in another practical way by including the average dose of each drug and preparation for internal use. The trend of therapeutics along new lines was recognized in the introduction of anti-diphtheric serum and desiccated thyroid and suprarenal glands. These additions indicate that the revisers of the work went just as far in the introduction of new features as the status of our knowledge and experience, tempered by a wise conservatism, would permit.

Appreciating the progress of the past three decades, we are warranted in saying that, in its present status, the United States Pharmacopœia is in the very front rank of the world's recognized standards in medicine and pharmacy, being excelled by no other work of its kind; and that, among the pharmacopœias of other countries it represents a progress that is in keeping with our national character.

From this it must not be suppose that the book is incapable of improvement. On the contrary, the coming revision is being looked forward to as an opportunity to alter and perfect, and there

will follow decided improvements in some respects; and it is fortunate that conditions are such that an awakened medical profession can effect whatever changes it desires as to contents and arrangement within the proper scope of the work. We shall find the pharmacists ready to aid us in this as in all lines of mutual interest, and we need not fear any attempt at domination of influence in its revision. But it is a question whether any very radical changes are needed; at any rate, any radical propositions should be considered with care and discrimination, in view of the standard character of the work.

Now, as to the needed improvements. In the interest of a simplified *materia medica*, it is important that in the next revision all drugs that are nearly obsolete, and those of slight medicinal value, should be eliminated. With each past revision numerous articles have been discarded and others admitted, but too many very inferior drugs have been retained. At the present time elimination is needed more than addition, though a number of new remedies of approved value will, of course be properly admitted. In addition to valueless drugs quite a number of preparations and of unimportant salts could be dispensed with. The list suggested by the committee of the Section on Medicine of the American Medical Association indicates about what could properly be done in the way of elimination. If we were to limit our official recognition to the really useful substances, it would follow that our students in the medical schools would learn fewer drugs and know them better, which would be greatly to their profit in more respects than one. It would fortify them against skepticism as to the value of drugs and it would foster a skepticism as to the extraordinary claims of the proprietary manufacture.

The recognition of sera and of glandular organs or their products, introduces the difficult question of their standardization. These substances do not usually admit of identification by chemical assay. Their value and strength depend upon dynamics that cannot be measured except by their power of influencing vital processes. Therefore, it seems necessary if such new remedies derived from the animal body are to be recognized, that methods of physiological assay should be adopted, as best serving for their standardization. The same need applies to a few of our most important vegetable drugs, whose active principles are variable or unknown.

Ten years ago this society recommended the creation of a Bureau of *Materia Medica*, by and under the authority of the United States Pharmacopœia, for the purpose of investigation into the character and value of new remedies, with the provision that it should report annually upon matters coming within the scope of its work. If such a bureau is thought desirable, it should be now possible for it to supplement in a practical and authoritative way the excellent work of the

Council on Pharmacy and Chemistry of the American Medical Association, by reporting annually upon the few really valuable new substances that have been thoroughly approved by experiment or clinical experience. An annual supplement to the Pharmacopœia consisting of a few pages, to be pasted into the regular volume, would suffice and this would not entail large expense.

The suggestion to revise the Pharmacopœia once in five years has frequently been made. From the standpoint of teacher and student a considerable change in standards oftener than once in ten years would be undesirable, while the demands of medical progress would be well met by a small annual supplement, whose contents could easily be mastered.

The practical value of the book to practitioner and student would further be increased if incompatibles could be mentioned in connection with each substance and preparation. To the same end the chemical tests of substances might possibly be dismissed.

Improvements as to details of the work can best be left to the Committee of Revision. These general suggestions are here presented with the purpose of aiding improvement in essentials without radically altering the present excellent character of the work.

### THE TREATMENT OF FAILING COMPENSATION IN CHRONIC VALVULAR DISEASE OF THE HEART.\*

By WM. M. GIBSON, M.D.

UTICA, N. Y.

THE detection of signs of failing compensation in valvular heart disease, especially in the case long under care and observation, must always create apprehension in the mind of the medical attendant. Although no chronic disease is so amenable to personal care and the treatment offered by modern therapeutics as the disorders under consideration, the terminal stages of valvular heart lesions, with perversion of almost every function of the body, must ever tax the resources of the physician to make life endurable under the burden of the obstructed circulation. I think we all have observed the vast difference in individual resistance to the advancement of structural change, and nowhere is the difference more noticeable than in the subjects of chronic valvular disease of the heart. Although largely a question of mechanics the study of the deranged vascular mechanism cannot be accurately prosecuted without full consideration of the factors of nutrition, resistance, heredity and the personal equation which embraces more than all of these elements, the actual vital possession which has been developed through both heredity and environment. Let us

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remember in considering the treatment of chronic valvular disease of the heart that the first act performed by the circulatory wave is the provision made for the nourishment of the heart muscle and that as long as the heart is enabled to care for its own nutrition just so long is it possible for it to support the extra muscular development which constitutes compensatory cardiac hypertrophy. The slightest degree of coronary insufficiency is followed by corresponding failure in the heart's power to overcome the effects of an obstructing or leaking valvular fold. It is the presence of this bar to the circulation, or the abnormal aperture caused by the distortion of the valvular folds, that gives rise to the adventitious sounds we designate murmurs, the essential diagnostic elements. The mere detection of a murmur however gives us little or no insight into the effects of the lesion on either heart wall or general circulation. It is the reaction of the heart's muscle to the strain thrown on it by the lesion that forecasts the history of the patient, weighed, of course, by the aggregate of clinical experience; and, too, it is this reaction which should guide the physician in his care and general management of the case. There is hardly time to go even superficially into the histology of the cardiac muscle or give much consideration to the physiology of the vascular mechanism, but there are one or two features distinctive to this tissue that I must beg leave to call attention to. The structure of the heart's muscle differs but little from that of the skeletal muscles; its functional activity, however, is affected very differently. The volitional muscles respond to the influence of stimuli from the central nervous system only, the neurogenic stimulus. In addition to its neurogenic response we have reason to believe that the cardiac muscle in fully developed vertebrates possesses myogenic properties. Lower down in the scale of life, for instance, in the tunicates, heart action is maintained as a simple muscular contraction without the influence of a nervous system. This is true also of the embryonic vertebrate heart, and Gaskell and Engelmann have both pretty conclusively demonstrated that certain areas of the adult vertebrate heart possess the power of spontaneous muscular construction, that this wave of muscular contraction is really myogenic and induced by certain stimuli that do not operate through the nervous system. Those of us who have read the experiments of Loeb reported in his "Physiology of the Brain," cannot fail to accept his statement that the development of the nervous system has not robbed protoplasm of its original property, automatic response to irritation. The nervous stimulus is not the equivalent of the resulting muscular contraction, it is the spark that explodes the charge. The most extreme degree of nervous stimulation, distributed over the entire cardiac area, can only provoke the expenditure of cardiac energy that

is stored in the essential myogen and myosin. We must remember also that the tissue supplied by any nerve fibre dominates the effect of a nerve stimulus; a segment of a frog's muscle devoid of a nerve tissue grafted into a part of the frog's body not supplied by nerves especially concerned in the production of motion, will permit the entrance into its tissue of the nerve supplying the region it has been engrafted upon, but it responds only by muscular contraction to the stimulus of this nerve. It seems to me that these instructive disclosures of physiological research have more than light bearing on the treatment of chronic valvular disease of the heart. The individual tendency referred to may be a condition of general nutrition with especially well developed muscular nutrition in which both the neurogenic and myogenic properties of the heart muscle are possessed in the highest possible degree. Again we can hardly expect remedies which stimulate cardiac action only through its nerve supply to increase the nutrition of a heart wall impaired by fatty or gouty degeneration; even could the nerves penetrate the fatty or fibroid tissue replacing the muscle fibres no contractile response could possibly follow the nerve stimulus. We can add myogen and myosin to each bundle of muscle sacs only by carrying blood nutrition to its highest point. We can, however, secure a larger blood supply through the action of remedies which increase the systolic impulse.

Clinical experience assures us that as long as a good degree of compensatory hypertrophy is maintained by cardiac nutrition, barring the accidents of embolism and asystolism, the patient is comparatively safe and free from the more serious symptoms of obstructed circulation. It behooves us then to be thoroughly conversant with both the indications of proper compensation and the early signs of failing heart power. Very few of us possess the ability to detect slight changes in the cardiac outline; this indeed is well nigh impossible in plethoric or very fat people. Many of our cases, too, are not under constant enough observation to permit us to recognize changes which might be noticeable were they seen more frequently. We are somewhat in the hands of our patients so far as applying early remedial measures in failing heart power is concerned, but no person the subject of a chronic valvular heart lesion should be permitted to go uninstructed as to the main symptoms of failing heart power. Very few subjects of valvular heart disease in which a proper degree of compensatory hypertrophy is maintained are conscious of anything more than an increased cardiac impulse provided no special tax is put upon heart action. The ordinary acts of the daily routine, often quite laborious, are performed without seriously disturbing the cardio-respiratory rhythm. Dyspnoea is nearly always a symptom which disturbs the patient enough to

warn him that heart action is overstrained, especially if he has experienced a previous dilatation. Cardiac pain is a very certain indication of either heart strain or failing cardiac nutrition. Irregular or tumultuous heart action and tachycardia are other symptoms more or less disturbing to the patient and as a rule are not ignored; marked alterations in rhythm will very soon be followed by respiratory disturbances, dry cough with a sense of suffocation, which are seldom experienced without alarming the patient even if the irregular heart action has gone unnoticed. Oedema of the feet and ankles are also early indications of impending dilatation, but of all the chief symptoms of circulatory failure the most likely to be disregarded. My experience leads me to believe that the earliest symptoms of failing compensation are to be observed in the nervous system, noticeably is this so in lesions of the aortic valves. Headache, vertigo and a peculiar form of mental depression are very frequently complained of before dyspnoea and oedema have become pronounced symptoms. This mental depression resembles somewhat that of *neuraesthesia*, but unlike the brain fatigue of this purely nervous affection it is relieved by sleep to appear again at the close of the day. Disturbances of sleep are also marked features of the early stages of cardiac failure; wakefulness, broken sleep, sleep start and air hunger are often experienced long before any sign of visceral engorgement can be detected. These symptoms should never be ignored by the medical attendant or regarded as so-called "nervous" conditions; they are certainly disturbing enough to the patient to warrant full consideration, and when we remember that they are marked symptoms of true myocardial degeneration not associated with valvular disease, their presence in the course of valvular heart affections is referable to failing heart wall nutrition and not to slighter disturbances of the circulation. If the patient can be kept closely enough under observation to permit regular registrations of blood pressure very valuable information can be obtained by the records of the sphygmomanometer, but manifestly this can only be done in a few of our cases. Blood examination is also of much service in aiding us to determine the condition of general nutrition and to estimate the resources nature has at hand for supporting the extra development of heart muscle. Very frequently we will note in the field of the blood slide some disparity in size of the red blood cells and also inequality in hemoglobin bearing power of these cells even when compensation is at its best, but if these changes are persistent, or if found more and more marked we can be pretty certain that general nutrition is failing and that coronary insufficiency will soon starve the heart muscle.

If we are fortunate enough to detect the signs of failing compensation in any of our cases before dilatation has become marked, it seems to

me there is but one course to adopt and that is to secure complete mental and physical rest for the patient. A certain number of these cases, if the dilatation has not been induced by an acute endocarditis, the result of a recurring rheumatism or some other form of infection, will very surely by this means obtain the requisite degree of compensation necessary to carry on the general circulation and sufficient to fully nourish the heart wall. To attempt to whip up heart action by digitalis or other cardiac tonics without offering nature the aid of rest, is a grave mistake. Even if compensation is restored by such treatment it is often short lived, and, too, I am convinced that in a following period of cardiac insufficiency we get much less aid from these drugs than we do when prolonged rest in addition to these remedies has afforded every possible chance of reducing circulatory obstruction and improving the nutrition of the heart muscle in its first failure. Not infrequently rest alone is all that is necessary to enable the heart to recover proper action. Irregular and tumultuous heart action should not always be considered an indication for a special cardiac remedy. If these disturbances do not yield to rest in not a few cases they will subside under the influence of small doses of aconite and opium when apparently digitalis aggravates the arrhythmia or over-activity. Calling to mind what we know of cardiac nutrition the question of diet in this stage of cardiac disease is all important; more or less disturbance of the digestive functions is a pretty constant result of interference with the return circulation and for this reason digestive power is never fully up to normal in failing compensation. Fortunately, the most nutritious articles of diet are the most digestible and the perverted function of digestion should never be taxed by too full or too varied a diet. The meat, milk and egg foods should be given to the exclusion of the bulkier and more indigestible vegetables and starchy foods. We can for a time exclude all of the carbohydrates, but if the period of time required to secure good compensation becomes prolonged it will probably be necessary to include in the dietary some cereal, such as rice, or bread, in order to prevent the change in muscle nutrition, which follows long deprivation of starchy food. Full recognition must be made of digestive symptoms, for the selection of a diet alone will not always correct these disturbances. Intestinal flatus and constipation are often very trying complications and sometimes seriously embarrass the circulation. Some aid may be obtained from the use of the digestive ferments, especially of those derived from the vegetable kingdom, diastase, caroid and others; constipation must always be relieved, but preferably by mild remedies. If any marked degree of anæmia exists we have in the iron preparations true stimulants to muscle nutrition, but I cannot see the advisability of pouring into the stomach full doses of iron compounds unless positive indications for their use are present in

the blood. My own experience leads me to believe that iron is more serviceable as a muscle nutrient when combined with ammonia. The time honored Basham mixture is certainly well tolerated by the stomach and seems also to possess a certain power of stimulating elimination. A combination of ferric and ammonium chlorides is often serviceable and, in spite of its rather acrid taste, is a good stimulant to a depressed digestion. We have too in some of the organic preparations of iron valuable blood tonics which are acceptable even to easily disturbed stomachs and are tolerated for long periods of administration. The one remedy, however, which is most often indicated in failing heart power is digitalis. No drug supposed to be a substitute for it is its equal in its effect on the cardiac muscle. The only question of its use is that of deciding whether or not the heart needs the aid of a drug to support its failing power. If rest and proper nutrition do not give the desired results some preparation of digitalis should be given in sufficient dosage to obtain its physiological effects and the preparation should be used long enough to obtain its peculiar effects not only on the general circulation but also on the blood supply of the heart wall. Unfortunately, the drug is not free from disturbing effects on digestion; positive signs of gastric irritation are sometimes to be noted from the commencement of its use. Probably we have all had this experience with digitalis, and in some instances have been compelled to abandon its use after trying all of the various preparations from the infusion to the solid extract. Within the last few years several preparations containing the glucoside digitoxin in concentrated solution have been put on the market. They fully represent the medicinal qualities of the drug and seem to be free from irritating effects common to other preparations of digitalis, but the rather extreme cost of these valuable additions to our remedies prevents, in a measure, their general use. If by means of rest and the proper use of remedies we have been able to avert a serious degree of dilatation and have succeeded in restoring the obstructed circulation to a nearly normal condition, the question will naturally arise, even if not antedated by protests from the patient, how soon will it be safe to permit exercise and how long will it be before the patient can resume the routine of his daily life? On these questions the lesion has an important bearing; an aortic insufficiency is a graver lesion than the same condition at the mitral orifice. A compensation secured for the former must be guarded more closely than that obtained for the latter. Age, occupation, the general habits of life, the duration of the disease and the nutritive powers of the patient must all be considered in answering this question. If it is possible to keep the case under close observation we may permit a degree of freedom that might not be advisable in one seen but seldom. As a rule it is better to allow those of sedentary occupation to resume the ordinary ways of living as soon as

compensation is fully established. Moderate exercise seems to give these patients a better general nutrition and also insures a more normal condition of the nervous system, which is much to be desired in the treatment of such persons. In the stage of sufficient compensation our chief concern will be to induce the patient to live as regular a life as possible, and above all, to control the appetites. Too much stress cannot be laid on warning the patient of the dangers of sudden effort, loss of temper, undue excitement, mental strain and worry. In this stage proper attention should be paid to elimination; an inactive skin, insufficient kidney function and perverted digestion seriously strain heart power and slowly but surely produce the results which more quickly follow mental and physical over-exertion.

The favorable results just rehearsed are, however, the exceptions rather than the rule in our clinical experiences. Many cases of chronic valvular lesions from the incipency of the valvulitis to the terminal stage never secure a true compensation. In other cases a lost compensation is never fully restored. The fundamental relationship between heart wall and visceral function, the very key to successful treatment, sets a limit to our power to overcome the obstructed circulation or build up the failing cardiac muscle. We must not forget that two great vital functions are directly under the control of blood pressure, the secretory function of the liver and the excretory action of the kidneys. In both aortic and mitral disease the development of chronic nephritis is almost a certain result of long continued obstruction to the return circulation. The peculiar condition observed in cases of mitral insufficiency of long duration, known as the hepatic stage, is the direct outcome of reduced arterial pressure and venous engorgement. The long continued interference with the pulmonary circulation and the starvation of lung tissue through insufficient filling of the bronchial arteries, gives rise to alveolar distention, increase of interstitial tissue and extreme pigmentation, the pathological features of brown atrophy of the lungs. Confronted with these conditions and the host of symptoms attending them our treatment must be directed not only to sustaining heart power so far as it is possible, but also to overcoming visceral engorgement and securing relief from the depressing effects of these distressing conditions. Dyspnoea next to pain is the most trying symptom human fortitude is subjected to; the most intractable patient I ever had under care was reduced to a state of abject subserviency by his first air hunger. Dyspnoea is due to either disturbance of the cardio-vascular rhythm, visceral engorgement and dropsy, or myocardial change often without marked alteration in the general circulation. Relief can be given only by recognition of its cause. The dyspnoea caused by disturbance of the cardio-respiratory rhythm is really the classical symptom of chronic valvular disease. It should yield to the administration of

digitalis if to any remedy, but frequently we can only restore the normal ratio of heart and lung action by combining with it a respiratory stimulant; here strychnia is of positive benefit when given with digitalis. Full doses of tincture of nux vomica really gives us something more than the value of strychnia and unless there is indication for the hypodermatic use of the alkaloid, I prefer preparations of nux to the latter. The dyspnoea of dropsy can only be relieved by unloading the obstructed circulation. Of the treatment of dropsical effusions and general anasarca much might be said if time permitted, but I want especially to call attention to the efficacy of one drug in the treatment of this distressing and often obstinate symptom, apocynum cannabinum. From no other remedy have I obtained such marked relief in the various degrees of dropsy as from the use of a reliable preparation of this common herb. An infusion of the fresh roots gives us the full medicinal value of the drug, but the fluid extract may also be used when the roots cannot be obtained. If the fluid extract is employed it is advisable to give it in capsules, filling each capsule at the time the dose is to be given, its exceedingly bitter taste can only be covered in this way. Its action is exerted on the heart muscle and is also markedly diuretic; it carries off large quantities of water through the bowels, and this, too, without any serious disturbance of digestion or the depressing and exhausting effects of powerful cathartics. While numerous references to its value in dropsy have been made of late, it is an old remedy and one well worthy of trial in the treatment of this frequent complication of cardiac insufficiency. The dyspnoea of myocardial change is one of the most trying symptoms of cardiac disease. Sleep start, air hunger and cardiac asthma rob the nervous system of its needed rest and inspire terror with the approach of night. Boswell's Life of Dr. Johnson contains many references to the dread of the night hours this great censor of humanity suffered. To secure sleep for the patient disturbed by sleep start we can avail ourselves of the means afforded by the bodily position offering the least resistance to the circulatory current, the position instinctively sought by savages at rest: sitting with the thighs drawn well up on the abdomen, the trunk inclined slightly forward, the head dropped toward the sternum and the arms supported so as to free the axillary spaces from pressure. A head band fitting the forehead suspended from the ceiling will give the necessary support to the head and prevent the sudden lurch which always awakens the sufferer. This simple device has frequently been a more grateful means of obtaining longer periods of sleep than the effects of any hypnotic administered for the relief of this symptom. Air hunger and cardiac asthma are probably best relieved by stimulants given freely; the sense of suffocation and impending death demand as immediate relief as it is possible for us to confer, but we must not over-



look the condition of the patient's mind at this time. Reassurance and the presence of the medical attendant or nurse are often more comforting and fully as effective as remedies; to suffer the agonies of an air hunger alone is pretty much beyond the endurance of the strongest mind. A complicating nephritis is always a tax on heart power and, too, the danger of acute uræmia must not be forgotten. Chronic uræmia disturbs digestion, checks secretion and seriously impairs the nutrition of the nervous system. The nerve centers controlling the heart's action can hardly respond to the effects of cardiac tonics when perverted by the poisons which fail to pass through the kidneys. Elimination should be encouraged by every possible means, especially through the action of the skin. An impending uræmia often may be averted by the free use of ergot hypodermatically as advised and used by Livingston; we have in this remedy also the surest and speediest means of sustaining the heart in pulmonary œdema and cardiac asthma.

Many cases of valvular disease in advancing years are complicated by arterial sclerosis, here nitrites may be given with marked benefit, but moderate hypertonus may possibly be compensatory and should not be meddled with. We have also in certain drugs a means of stimulating the nutrition of the heart muscle, which will for a time increase the power of the cardiac impulse. The iodide of iron, iodide of arsenic and the chloride of barium possess some degree of improving the nutritive condition of the muscle fibres of the heart. I have unquestionably seen good effects in extreme dilatation from the administration of the barium salt, but I am convinced that the dose of this drug should rarely exceed one-fourth of a grain. In the terminal stages of chronic valvular disease we are justified in using any anodyne or hypnotic that will make the conditions of extreme anasarca bearable to the patient, and the delirium or mental disturbances less harrowing to the relatives and friends. Before abandoning the hope of overcoming the dilatation and restoring at least a partial compensation we must give nature every possible aid and exhaust every therapeutic means of securing these ends. I have recently seen in the case of a professional brother, long the subject of an aortic and mitral insufficiency, by means of the Nauheim treatment a result obtained that well-nigh seemed impossible. In the early stages of cardiac failure rest is the one thing demanded by nature, without it we can do but little to arrest the inevitable dilatation. If rest can be secured for the patient we can turn our attention to building up the failing heart muscle and relieving the obstructed circulation with a fair degree of confidence that our efforts will be successful. The brain rests a sufficient part of the day to renew its energy; the digestive processes are not continuous and the skeletal muscles soon become exhausted if overtaxed, but these ten or

twelve ounces of muscle fibre never rest while life lasts. The hundred thousand daily pulsations of the heart represent an enormous expenditure of energy, but this energy is only the heart's portion of the potential force stored in the general nutritive supply of the economy. Nature has made the greatest possible provision for supporting the tireless action of the heart, retaining even in man the useful properties of the primitive blood sac. With so large an heritage of the past it is not to be wondered at that the heart even with profound structural alteration is capable of still performing its work. Nature has led this great vital organ through many successive changes in development into the body of man, and it is part of your duty and mine to see that its marvelous power is not subverted by ignorance or wilful disobedience of nature's laws.

### A PANACEA FOR CATARRH.\*

By T. H. FARRELL, MD.

UTICA, N. Y.

YOU have all heard of the barber who had these words in his window—which seemed to read—What do you think? I'll shave you for nothing and give you some drink. When, however, a customer claimed his beneficence, the barber replied—What! So you think I'll shave you for nothing and give you some drink!

So the title of this paper should be read with the rising inflection. But is it not true that some remedies approach closely to curing all catarrhs? No. No nearer than sweet oil and laudanum comes to curing all earaches.

What then of the claims made for various patent and proprietary preparations in the lay and medical journals? They all have a modicum of truth, but most of the latter day cures contain cocaine or alcohol, which in relieving the catarrh temporarily, fastens on the victim a habit which undermines his health and morals. The more innocent depend on the alkalinity and pleasant flavor of their solutions. But when did the proprietors of glycothymoline, listerine, etc., get a monopoly of soda, borax and common salt, eucalyptus, etc.?

What then do we make of the statement of individuals whose integrity is beyond cavil? Simply that no general deductions are to be drawn from isolated cases. For example, a man suffering with catarrh goes to Labrador and is cured. It does not follow that all the other sufferers would fare as well provided they could change their domicile. Yet it is probably true, or approximately true, that there is a cure for each one if the proper means were only employed wisely and well.

Hence our panacea resolves itself into an

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accurate diagnosis and a wise application of the ordinary remedies in each individual case. And this paper is meant to be a plea for greater pains in the making of a diagnosis.

*Definition.*—By catarrh I here accept the popular meaning attached to the word—a chronic annoying discharge from the nose, associated with a stoppage of the nose, partial or complete.

We dismiss then at once all the acute conditions which are for the most part limited by the disease of which they are an expression—such is the rhinitis accompanying measles, typhoid fever, epidemic, influenza, diphtheria, etc.

Most people consult a physician for their acute ailments, but it is the chronic sufferers that fall a prey to the quacks and charlatans who do not hesitate to advertise and make claims that the etiquette of our profession and common honesty deny to the physician whose chief end is not dollars. The quack is not interested in curing the disease but in selling his "cure." Hence he acts on the commercial principle that—

The man who has a thing to sell  
And goes and whispers it down a well,  
Is not so likely to collar the dollars,  
As he who climbs a tree and hollers.

So loud does he holler and so persuasively that at times he misleads not only the laity but the doctors as well.

Let us as a profession give heed to the good book which says, "no man having drunk old wine desireth new, for he saith the old is good." So there are established methods of practice which we should be slow to give up, while keeping our minds open to new methods and new applications of old remedies.

However, to some minds the new is always the attractive and many will accept the claims of every so-called discoverer, without waiting for the proofs.

In this day of cheap and reliable medical journals there is not much excuse for failing to keep fairly abreast of the truth.

I am in the habit of telling recent graduates that nothing will yield them larger returns for the effort put forth than to master the use of the head-mirror. Not only the ordinary run of cases of catarrh can be treated with more satisfaction, but frequently the most obscure cases become plain as day. No elaborate armamentarium is necessary to make a beginning. A student lamp equipped with a condensing lens kept on the office desk and the use of the head-mirror and speculum whenever a case presents or an excuse affords opportunity. Practice will bring dexterity and experience teaches with the aid of good books.

Much is to be learned from a study of the subjective symptoms and their relation to the healthy functioning of such organs as the heart, kidneys, and digestive apparatus, but the conclusions lack definiteness and certainty unless

controlled by the information that comes by sight and touch.

For example: A patient has an annoying discharge from one side of the nose. There is more or less mouthbreathing and a disagreeable odor. The general health may be good or not. Is this a simple ozaena from atrophic rhinitis, a syphilitic necrosis or a rhinolith. Inspection under proper illumination quickly settles the diagnosis. It is quite possible that such a case would prove to be a simple chronic rhinitis with crusts infected by saprophytic bacteria. Then it would be in order to search for any lesion which directly or indirectly affects secretion or circulation. For instance: If intestinal torpidity is found with autointoxication the indications for constitutional treatment are plain and the local treatment would be reduced to the use of simple detergent and astringent solutions.

The following case is illustrative of a less common type of catarrh and its treatment: Mr. J— consulted me first in September 26, 1906, complaining that he did not breathe well, his nose discharged constantly and he suffered from headaches. All these symptoms date from one year previously when he had a severe attack of grippe, terminating in pneumonia. His nose had been broken in youth. It was flattened externally and deviated to the left. Internally the septum has deviated to the right making that side very narrow. Rhinoscopic examination revealed abundance of pus in the right side of the nose, which appeared to come from high up under the anterior end of the middle turbinate and also from further back near the ostium of the antrum of Highmore. Transillumination with an electric lamp in the mouth showed the right cheek dark, and places under the brow, the right side of the forehead was dark, thus corroborating the diagnosis of (chronic) empyema of the antrum of Highmore and the frontal sinus on the right side. He brought an almost unbearable stench into the office with him. The source of this was in part revealed when the antrum was washed out bringing away foul-smelling pus and verifying the diagnosis. A week later under general anæsthesia I did a Coakley frontal sinus operation. This is a modification of the more radical or at least more extensive operation of Prof. Killian of Freiburg. It consists in making an incision through the eye brow down to the bone one-eight above margin of orbit. The upper flap of skin and periosteum is then elevated and the whole front wall of the sinus removed with chisels. This gives free access to the sinus which is thoroughly curetted so that not a vestige of mucus lining remains. The naso-frontal duct can be enlarged by curetting the anterior ethmoid cells. The posterior ethmoid cells cannot be reached in this way. A drain is carried down into the nose and the flap replaced and the incision closed.

The operation failed to entirely stop the flow

of stinking pus on account of the diseased condition of the maxillary sinus. On November 4th, this sinus was opened freely through the anterior naris under local anæsthesia by removal of the anterior end of the inferior turbinate and as much of the inner wall of the sinus as possible. Following the operation the discharge and odor promptly disappeared and have never returned.

An illustration of ethmoid disease is furnished by Miss C— who was sent to us on October 16, 1906. She stated that she had had a bad cold since the previous spring. The right side of her nose was stopped up, mouth dry and sore. She had been doctoring for "catarrh" and had spent all summer in the Adirondacks as her failure in weight, poor appetite, want of ambition, etc., had led to a diagnosis of tuberculosis. Examination with reflected light through the nasal speculum revealed a large polyp springing from the posterior ethmoid region and occluding the right posterior naris.

The following day she submitted to operation which consisted in removal of the large polyp and a number of smaller ones, together with curetting of the ethmoid cells, which were found to be diseased. A week later she reported at the office. Her color was noticeably improved, her carriage more alert, and her face had lost its anxious look. She said she was feeling fine, better than in a year. Her mouth was no longer sore and her appetite good.

The symptoms in this case were exaggerated, but I know of no class of patients that are more appreciative than those relieved of ethmoidal obstruction in the nose.

It is not my purpose to even enumerate all the possible conditions which might give rise to a popular diagnosis of catarrh, but in a general way I might mention malformations and deformities of the nasal septum, empyema of the accessory sinuses, adenoids, new growths (benign and malignant), syphilitic and tubercular lesions, necrosis, general hypertrophy, atrophy, foreign bodies, rhinolith, etc.

The general practitioner can put himself in the way of diagnosing all these correctly, if he will only make himself familiar with the use of the head-mirror, nasal speculum, and cotton-tipped applicator, and follow the guidance of any standard text-book such as—Richards.

## INJURIES TO THE PATELLA WITH THEIR SURGICAL TREATMENT.\*

By J. H. MITCHELL, M.D.  
COHOES, N. Y.

**B**EFORE taking up our discussion of the subject in hand, I think it would be well to refresh our memory by a brief anatomical description of the patella.

The patella (little dish) or knee pan is a flattened triangular sesamoid bone in the quadriceps extensor tendon at the front of the knee joint. Its slight convex ventral surface is longitudinally striated for the fibrous expansion of the tendon. Its dorsal surface is mostly cartilage-clad to articulate with the trochlear surface of the femur, and is divided by a vertical ridge into a large outer concave portion and a smaller inner convex one to articulate with the outer and inner sides respectively of the trochlear surface. The upper border or base is beveled in front and has attached to it the tendon of the muscles comprising the quadriceps extensor. The apex is directed downward and the border on either side of it attaches the ligamentum patellæ while the rough area of the dorsal surface above the apex is in relation to a mass of fat. In front of the patella is a bursa separating it from the skin.

Injuries to the patella are dislocations and fractures. The majority of the dislocations of the patella are lateral. They are easily detected, easily reduced and the after treatment is directed to the prevention of recurrence. The patella can only be displaced downward by a blow received on its upper margin sufficient to tear it loose from its muscular attachments, and when it is carried upward by the contraction of the quadriceps the ligamentum patella is ruptured.

These need careful surgical attention.

*Fractures of the patella* may be caused by violent contracture of the quadriceps extensor muscle, or by a blow or fall upon this bone, or both of these factors may combine to cause the lesion. The line of fracture is usually transverse and in a majority of instances, just below the middle of the patella. It may be broken in an oblique or longitudinally direction or in several directions at once. This has been called stellate fractures. When muscular contracture is the chief or sole factor in this break, the line of cleavage is usually transverse. Longitudinal and stellate fractures are usually the result of direct violence. Fracture of the patella is usually complete. The separation of the fragments varying from a small fraction of an inch up to two or more inches. The separation is generally more marked on the internal, than the external border.

There is what is known as *incomplete fracture of the patella*, where the cartilage has not given way, but as these fractures are mostly discovered at post-mortem they are of little interest to the surgeon.

There may also occur from direct or indirect violence, *rupture* of the tendon of the quadriceps extensor femoris, which Dr. Joseph D. Bryant, says in his text-book on operative surgery "May be mistaken for fracture of the patella." As I have never seen one of the cases, I may not be a competent critic, but I do not see how one can mistake a ruptured tendon for fractured patella unless the parts are so swollen as to make it impossible to discover the anatomical

\* Read before the Third District Branch of the Medical Society of the State of New York, at Hudson, N. Y., October 5, 1909.

relations. I have seen two cases of rupture of ligamentum patella caused by direct and indirect violence, to which I shall refer later and they were easily detected.

There are many methods of treating these injuries of the patella. The one in vogue and most highly recommended by Wyeth twenty years ago, in fact, Dr. Wyeth declared, in 1887, "The only sane way to treat these injuries was, the Hamilton method." Professor Hamilton's method, as you all know, is the prepared posterior splint holding the fragments together as best as you can by bandages, otherwise known as the non-operative. The subcutaneous ligature thrown around the fragments, known as *Ceci's* method, afterwards much improved upon by Dr. W. G. McDonald, of Albany, N. Y., who devised a needle that would call for but two punctures, thereby greatly reducing the chances of suppuration. And the *direct operative method*, that of cutting into the joint and bringing the fragments together with wire or catgut.

In support of the latter method, I wish to report a few cases I have treated.

CASE 1.—J. M—, aged 44, a mason, slipped and fell on icy sidewalk, December 10, 1906, striking on right knee producing a comminuted fracture of the patella. The patella being fractured transversely and the lower fragment, fractured vertically. He was brought to the hospital December 14th and I operated the next day, five days after the injury. A transverse incision was made directly over the separated fragments, blood clots removed, and all intervening fibrous and other tissue cleared away with scissors. The fractured surfaces brought together with three wire sutures, all other parts brought together with catgut. Subcutaneous stitch being used in closing the wound, which was sealed without drainage, covered with iodoform gauze, and aseptic gauze pad, and a plaster paris cast applied to the full length of the leg. As there was no temperature present, we made no fenestra in cast until the 12th day, when the wound was examined and found perfectly healed. Patient left the hospital on 16th day after operation. Plaster cast removed on the third week and passive motion begun. I saw him three months after the operation and he had an almost perfect joint.

CASE 2.—J. B—, aged 42. A cigar maker. Fell down a flight of stairs striking on his knees. Was brought to the hospital March 5, 1907. Upon examination found complete rupture of right ligamentum patellæ and partial rupture of left ligamentum patellæ. Operated next day, twenty-four hours after injury. An incision was made vertically over the right ligamentum patellæ. The ends of the ligaments were brought together with chromatinized catgut. Skin brought together with subcutaneous suture. Wound closed without drainage. Aseptic dressings applied and plaster paris cast extending the whole length of limb. This patient was a chronic alcoholic and took the anesthetic very badly, in fact nearly died on the table. We treated the partial rupture of the left patella by holding the parts together with adhesive bandages. A fenestrum was made in the plaster cast the third day but there was no suppuration. Cast removed the third week, passive motion begun. Patient was discharged 42d day after the operation. Had good results in both knees.

CASE 3.—February 29, 1909. L. H—, aged 34. Coal carrier. Fell on slippery board while carrying a basket of coal, striking on right knee causing a transverse fracture of the right patella and the fragments were separated two and one-half inches. Patient was brought to the hospital and operated on within two

hours of the accident. Made a transverse incision directly over the separated parts, brought fragments together with two wire sutures and all other parts brought together with catgut. Wound closed with subcutaneous suture without drainage. Aseptic dressings applied. Plaster paris cast was used on the leg. Fenestrum made in forty-eight hours after operation as temperature was 101. Found no suppuration. Cast was removed on the 18th day and passive motion begun. Patient was discharged on the 36th day after operation. Could then bend his knee to almost a right angle.

CASE 4.—H. D. M—, aged 41. Mill hand. On March 21, 1909, fell into canal, there being no water in said canal at the time. Received a scalp wound and a transverse fracture of the right patella. He was brought to the hospital and operated upon the same day, fourteen hours after the accident. Made a transverse incision directly over the separated fragments which were two inches apart. Fragments brought together with 30-day chromatinized catgut, *instead of wire*, boring the holes the same as if wire was used. All other parts were brought together with catgut finishing with subcutaneous stitch and no drainage. Aseptic dressings used and plaster paris cast applied to full length of the leg. As temperature was 102, a fenestrum was made in the cast on fourth day. There was a slight discharge from external angle of the wound and subcutaneous suture was removed. Hot bichloride packs applied and wound healed kindly. Plaster cast removed the 21st day and passive motion begun. Patient discharged the 42d day after the operation with limb in good condition.

CASE 5.—J. F—, aged 44, mill hand. On October 15, 1898, fell from an ice-house receiving a transverse fracture of the left patella. It was treated according to the Hamilton method. The result was a ligamentous union which afterwards became cartilaginous. In the space between the separated parts of bone, which was partially filled in with cartilage, you could place your three fingers. On June 10, 1909, he was in a railroad collision and although he did not fall, the severe contraction of the quadriceps refractured nature's repaired patella. He was operated upon June 14th, four days after injury. Transverse incision was made, cartilaginous parts brought together with 30-day chromatinized catgut, boring through the parts the same as for wire, also a chromatinized catgut was thrown around the patella passing transversely through the ligamentum patellæ at its insertion into lower fragment and so carried around the bone passing through the quadriceps attachment. Wound closed as in the past cases, no drainage. Plaster paris cast applied to leg in which a fenestra was made the next day. On fourth day had slight superficial suppuration, hot bichloride packs were applied and wound healed kindly. Cast removed the 28th day and passive motion begun. Patient discharged on the 54th day in good condition.

From my experience in these cases and from what I have gleaned in looking up our latest surgical authorities, I draw the following conclusions:

1st. That suture of the patella with wire or chromatinized catgut is now generally accepted as a justifiable measure.

2d. That thorough asepsis must be had to forestall the possibility of suppuration of the joint cavity.

3d. That the transverse incision made directly across the joint between the inner and outer aspect at or close to the line of fracture permits the most extended examination of the joint cavity and the best opportunity to repair the lateral lacerations of capsule and better opportunity to remove anything that might get between the fragments thereby.

4th. That it is well to seal the wound without drainage, if possible.

5th. That it is advisable to commence passive motion early.

To overcome the limitation of flexion, which is so common in repaired fracture of the patella, I am indebted to Dr. J. L. Archambault for the translation of the following from the *La Presse Medicale*, December, 1906:

"Following the teaching and practice of Lucas-Championniere, Vallos exhibited at the Society of Surgery, a patient admitted in his service with a fractured patella. He performed a suture through the ligamentous part only, not wiring the bone, and fourteen days after, the patient walked about without crutches, and a few days thereafter without even the use of a cane. Vallos considers the ligamentous circling sufficient. Extension is easily obtained. As to flexion, it is yet limited, but this is generally so at first. This limitation of flexion being the great disadvantage in fractures of the patella, it becomes of prime interest to attempt early mobilization. This case appears as a fair evidence, that such early mobilization can be safely undertaken by the fourteenth day.

## CARE OF THE SICK AND INJURED.\*

By J. C. YOUNG, M.D., M.R.C.S., M.R.C.P.

CUBA, N. Y.

IT is said that the sick or injured deer is abandoned by the rest of the herd. That such is the instinct of those animals. But the instinct of the human race is far different.

We are told there was a time when no man was his brother's keeper.

While we may still see or learn in the course of a lifetime of some few instances where a heartless indifference has been manifested toward a sick or injured human being, yet it is the instinct of the human race to go out with a deep feeling of tenderness and sympathy toward such persons.

History teaches us that at all times and in all ages mankind has manifested in different ways a kindly tenderness toward the sick or injured.

The natural regard felt for those who are near and dear to them in health has led to the adoption of some means or methods for their relief and safety when unable to care for themselves. A sick or injured person welcomes the flowers which bloom and fade, but how much more they welcome the care which always saves suffering and many times saves both life and health. This help and care is the monument they desire and welcome most.

Warriors have ambitions for the lustre of a single name, but this is always at the expense of a victory won or lost.

But in recent years there has sprung up all over this land institutions of learning, and out

from their doors have passed and are passing thousands who through special study have prepared themselves for a life work which is often far more commendable than that of warriors, and that is a work of saving life and prevention of suffering.

As far back as the oldest of us remember, people were very apt to remark that it was as much in care as it was in the medicine. Long years ago members of the medical profession who practiced then worked very hard in nursing the sick back to health. In many instances great confusion, if not serious trouble, followed such efforts, as it was always unscientific and inaccurate, but it was the best we were able to do for our best friends. Now this is all changed, for we see now that the means used with the best of intentions should be abandoned as inexact and unsafe. The M.D. formerly performed many of the duties which the nurse of to-day does. But the M.D. could not remain with the case, as other duties were pressing upon him and still he could not help but realize how important it was to have the constant attention of a nurse. Vision and reality differ, for generally they are widely separated as to time and space, but the vision of the Doctor well advanced in years and still practicing medicine, all the best years of his life spent in the sick-room and by sick beds, becomes very nearly realized now as to care of sick and injured and adds an alluring interest as they pass down the descent of life's avenues. The great advances which have taken place in medical and surgical science have created a need for new help both for the patient and medical attendant, a need which has been met to a great extent by the trained nurse whose coming into the sick room is inspiring to physician, patient and friends.

During recent years care of the sick and injured has been introduced which is far in advance of the older and so familiar methods to many of us here to-day. Since the change in the treatment of wounds and diseases the whole aspect of the question has been altered.

This is certainly a decided step forward and has a tendency to relieve the uncertainty which heretofore surrounded the case. Some brilliant results have been obtained in this way that could not be by any other.

It is claimed when the history of medicine of the present time comes to be written we will be accused of endorsing almost any method which seems to contain something new or some unusual feature about it. But this is not entirely new. Nursing is as old as the time when mothers first begot and cared for their offspring, but the trained nurse is not taking us back very far. It is only one of the means of replacing the more unsatisfactory and unsafe methods of years ago. Nursing the sick and injured has made its mark in history to remain as a very interesting page to look back upon.

This world is indebted for a lasting and sub-

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stantial benefit to many changes and improvements which have taken place in our day. The inventors say most to them. The chemists say most to them. The pathologists say most to them, other professions say most to them. But suffering humanity is surely indebted very much to those who from surrounding circumstances or their own inclinations and wishes have fitted themselves to save suffering and life by the care and attention they are able to give. It means much more than good intentions, which any one could give. Good intentions count for nought. They may be positively harmful. The advance in medical science and the care which a nurse can give a sick and injured person make great sacrifices of former times on our part needless.

We are no longer expected to risk so much while we are in the pursuit of our duty.

If the nurse is so helpful in the homes where wealth furnishes every comfort money can bring, how much greater help would they be in the homes where poverty is fostered in all its forms and where there is comparatively little to help the sufferer. The fact that there are a great number of sick and suffering all the time who are unable to obtain such help as the well-to-do are able to obtain has repeatedly drawn the attention of the medical profession and at times the public to this matter. The rights of the poor form a very interesting subject. The medical profession as guardians of the public health would naturally be looked to first in regard to this, but the subject is of so great importance that it is rather surprising that so far it has received so little attention from the public mind. There are a class of people who get along very well in health and yet find it difficult to make the income equal the outgo, but when sickness comes it strikes a new terror into their lives, and they ask what next, what in this world will happen to us next. Humanity inspires us to do all we are able to for the sick and injured no matter what their stations in life may be.

Things must be arranged not on personal grounds, but according to the needs of the case and nature of the disease. As human beings, each case deserves the same care and consideration. Our duty and work is to restore to health or relieve the sufferings of those who have been overtaken by disease. It should never be a question of how much or how little we can do, but what ought to be done and then do our best to do it. Lamentable as it may seem, disease sometimes causes death in a quiet way and takes a valuable life out of the world which might have been saved if proper care could have been given the case. While we are looking for better days yet to come to this class, yet present needs are crowding upon us and the question is, how shall we best provide for them now. Never before in the history of medicine has so much interest centered on this question as at the present time. The medical profession is deeply interested in it. And so we trust the time is near at hand when the needy

poor may feel that by stretching out the hand, that a helping hand is waiting to clasp their own in return. Such a fellowship constitutes a bond unbroken; by time unsealed. People may give different opinions as to what it is to die rich, but all will agree that the man or woman died very rich when after death they ask when was it that I had this account placed to my credit which has been accumulating all these years. And the answer comes when you saw the poor woman, the little boy or girl who were sick and in destitute circumstances and you sent a nurse there to care for them until they were relieved by art or released of their sufferings by death; you had this account placed to your credit and on interest, and when you died you did not leave all your wealth in the world you left. As the old Scotchman said, "this world we are passing through is God's world just as much as any we are going too." How poor people can receive the care of a nurse when sick, has, within recent years, received marked interest at the hands of the medical profession and some others as well. It is difficult many times, and in some cases we all must admit, but difficulties make the opposite and by that is success possible. The question comes every day to both the nurse and the doctor, what can I do, and what can you do to help a sick person to get well. The well trained nurse deserves and expects to receive \$25.00 per week in all cases. But there are comparatively few who can afford such a price for any length of time without a great hardship to them. But there are schools of correspondence and schools of short training where many can learn much as to how to help a sick person to get well and relieve suffering, who could not afford the time or expense to take full training. Such nurses could afford to give service at less than one-half the price asked by others. There should always be a full distinction made between the two classes. But I think all classes are getting nearer together on this point. I am pleased to note that through the well trained three-year-course nurse there is a marked change in their views and opinions on this point. They recognize more and more that the partly trained nurse is far in advance of no training and can furnish that care and attention which will be a great help, at a price the fully trained nurse could not afford to work for or others afford to send them to perform.

We trust the time is near when the sick poor will have something more than desire or wish, but a reality.

The nurse is the Doctor's best assistant, and very much of his treatment must be carried into effect by her. In very many cases the nurse stands ahead of any or all other measures we are able to adopt in piloting patients safely over critical periods in their lives. The Doctor requests and wishes, but he cannot carry out his wishes or requests.

There no longer remains a doubt that the medical profession owe to nurses a debt of gratitude

we can hardly repay. The most we can do is to cherish it, remember it, and acknowledge it. But we must not allow the public to feel that we wish the trained nurse simply to make our burdens lighter or our anxiety less. Show them that as much as ever we look upon our patients as sick and afflicted fellow creatures who want relief and help and that we can afford them the help they want in this way better than any other way, but no known means will be omitted or forgotten on our part. Philip Brooks in his last days said, that a minister who was up-to-date was in rather poor business. But give us nurses who are up-to-date. In the care they give the sick and injured they help us to save the father to his family, the wife and mother to her home, the child to the parents.

Some people claim the world is not growing better as it grows older. They say things were not so in their day, and they wish to take us back to the days when the red cradle rocked and they would ignore the more comfortable, the more sanitary and less cumbersome methods used in the care of the infant of to-day. The true nurse says not so, let us not do as our forefathers done, but let us do our work in a higher, nobler and better way for the relief of suffering humanity. Is there a class that do a better work. The sun does not shine for itself alone. It is for the race. Nurses do not work for themselves alone. It is for others. The good they do is not all confined to the sick room or sick beds, or to the interior of walls where their work is mostly done.

When a nurse graduates some might say her work is done. No more so than the work of the steam engine just completed. It is the number of miles it can make, the number of coaches and passengers it can carry as it jars the earth with its iron tread during the years which are to come that count.

The nurse's sense of duty, like that of the physician, is a constant reminder to make them do their best. The once anxious doubt as to the fate or result no longer disturbs the physician's mind, and the importance of this cannot be exaggerated, for our only hope in many cases rests in the care which is given the case. The day of memory and thanks at the hands of the medical profession toward the nurses as a class is not somewhere in the future. It has come now, and so we draw a scarlet line below the name of those who have done and are doing so much to help the sick and injured to get well, a line of scarlet below the names of those who have shared our anxiety until the sufferer was relieved. It is safe to assume that in the future, history will point out that many of the brilliant results obtained in both medicine and surgery will be closely associated with the help given by the nursing profession, their help rendering it possible to point out lines of safety and sources of danger. The people that others see strong and well, full of joy and activity, come under our observation, and also of the nurse when they are sick in both body and

mind. Men in other callings and avocations of life see people only when they are well, when they are ready to have their photographs taken, when they are at their best and when the most generous.

But the nurse, like the M.D., sees people under every disadvantage of disease, sees the strong when they are weak, the beautiful when they are repulsive with sufferings, which can be relieved only with care. In our success in modern days with the sick and injured who are entrusted to our care, do not let us be exalted more than facts will warrant. Let us give credit and praise to those who in the morning, at noon day, at evening time, at midnight, were anxiously waiting and watching by the bedside where we had great interests at stake.

### CANCER OF THE UTERUS.\*

By A. B. MILLER, M.D.  
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WHEN I was asked to write a paper on cancer of the womb for this society, I outlined a skeleton, dealing with the frequency and pathology of the malady, but as time passed, I found my mind reverting to the frequency, diagnosis and the appalling mortality attending it. The statement is made and seems to be authentic, that twenty out of every one hundred gynecological patients suffer from cancer, and one out of twenty-eight women over thirty years of age have cancer of the womb.

In all departments of medicine marked activity is being shown by our profession to arrest the ravages of disease by prophylaxis. This is applied by our boards of health to prevent diseases in our municipalities by correcting abuses, removing putrefactive matter, protecting water supplies, insisting upon proper sewerage and looking after the many sources through which contamination from disease finds its way to the human system.

The knowledge of micro-organism, obtained through bacteriology and the proper observation of cleanliness which is preventive medicine, has given much to humanity by preventing suffering and prolonging life and robbed surgery of its high mortality.

Tuberculosis comes under this classification and its prevalence is being moved against by methods which have been introduced by a more thorough knowledge of its ætiology, both prophylactic and remedial measures.

Is there not need for a more active campaign against this most fatal malady? A malady which invades the sacred precincts of our homes and chooses for its ravages the one who holds strongest the heart strings of our most cherished affections, mother.

Cancer in the womb, as cancer elsewhere in

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the human economy, obeys certain laws and gives rise to certain symptoms which like disease of other natures, if dealt with at the inception, might, owing to its local condition, be treated more successfully.

Cancer is prone to follow upon certain conditions of life. Conditions that would seem, according to human reasoning, unjustifiable.

The early command was "Be fruitful, multiply and replenish the earth," and woman for her reward is permitted to suffer from one of the most loathsome diseases that flesh is heir to.

As to the frequency of cancer. It is most common in the child-bearing woman, though no woman is exempt from cancer to some degree and in some part of the organ.

This leads us to a knowledge in part of its ætiology, traumatism, or the bruising or tearing of the parts during child-birth predisposing to it. Again, it is a disease, that, for the most part, has its existence in middle or advanced life, with symptoms that are not always manifest until it has extended to contiguous anatomical parts. While the disease is caused by injury to the neck of the womb by the passage of the child, other injuries may create it, as dilatation or instrumental trauma. Owing to the character of the tissue here, it not only pursues different courses but according to the seat of the involvement, gives rise to different symptoms and the prognosis is affected according to location.

If it arises upon the squamous epithelium, proliferating granular cells develop in abundance creating an extensive growth, cauliflower in character, that may nearly fill the vagina, before it is appreciated, and still not have invaded surrounding tissues or involved extensively the parts from which it sprang. Owing to the local nature of this variety, it offers the most hope for an ultimate recovery. If it has its origin in the canal of the cervix, in the cylindrical epithelium lining this part, it may be well advanced before marked outward manifestations would indicate its presence.

The same holds true in the third variety, if, in this part of the organ where the cells that line the glands of Naboth are involved. While the cervix is the most frequent seat of cancerous disease, there is no part of the womb but what may be involved. In the cervix injury is the prime ætiological factor, but in the cavity of the womb it may arise from the lining membrane, the cells lining the glands, from the retained products of conception, or be secondary to a fibroid growth. In its true classification these conditions may not belong to cancer proper, but from a clinical standpoint, they are all malignant, having power to infiltrate and destroy adjacent tissue and tend to the same fatal end, if not arrested.

This paper is not intended to present or go into the careful consideration of the pathology of the disease, but to put before the practitioner of medicine a picture of the malady with the hope

that we may be stimulated to a greater degree of watchfulness and activity in lessening the frequency and the ravages of this disease.

Woman is so constituted that from her organs of generation a periodical discharge takes place during the most active time of her life. Menstruation is the mark of health and thorough development of these special organs and is present, in perfect development, unless arrested by physiological laws.

Every woman appreciates the fact that a pregnant condition may be present when the function is arrested, and consults her calendar religiously, that she may not be surprised at its return or distressed by its absence.

Certain other irregularities creep in that the profession and the laity are wont to treat lightly, that is of more concern than the arrest of this function by natural laws. The presence of an increased flow, greater than has been the standard of the individual, which should always arouse suspicion of some pathological condition. The symptoms attending menstruation should be significant instead of a feeling of malaise or exhaustion, a sense of relief from lethargy, buoyancy or well being should be the result.

The general profession is becoming educated to this belief and are quickening their efforts to ascertain the cause of menstrual irregularities.

An increased flow may be only the result of an engorged liver, prolapsed ovary, movable kidney or a heart involvement, due to organic disease or functional disturbances, or a local condition, as engorged uterus or the presence of a polyp, etc., etc.

These are conditions that should be determined by the attending physician, for it may be that the presence of the irregularity is due to the simplest condition, but may be the first toll of the death knell, due to the early inception of cancer.

"Take nothing on appearances, but everything on evidence," would be a good motto for our profession to observe, and always a safe rule to follow. The impressions which women have so many times handed down to them by their ancestors are fallacious, not founded on facts.

The impression that the monthly flow is subject to great variations, without being suggestive of serious consequences, is a great misfortune and is based on ignorance.

That in the great majority of cases attended by irregularities the cause is trivial, we have to acknowledge, but, if only the tenth or hundredth case should on careful examination show that pathological conditions existed and by this means one life was saved with the probability that the majority of the others would be relieved and possibly permanently corrected, I think we should say "Well done, good and faithful servant."

It is not alone the fault of the all wise Master or the gossiping old woman that these conditions threaten human life. Our own profession has been indifferent in their duty to this class of



patients, more in the past than now, and with an enlightened knowledge, of the seriousness that may result to patients complaining of irregularities of the menses, they are not recommending palliatives in the way of douches for cleanliness or to astring the parts, to arrest the bleeding symptoms, but they are investigating and ascertaining earlier the true state, and directing their patients to a possible relief. The work should stop here. It is the duty of every physician to enlighten his patients on matters pertaining to the health of their physical body, and in doing so to lay stress upon the necessity of their advising with him on the slightest irregularity of their flow; and while the flow should have its inception without marked symptoms, so should it cease. The one is the beginning of a special function, the other its death.

If the question was asked of this medical body, what are the symptoms of cancer, they, with one accord, would say increased non-hemorrhagic discharge, bleeding and pain.

In the same thought they would include the nature and extent of the disease. If only leucorrhoea or bleeding, possibly a condition that would yield to treatment. If pain, that the disease was no longer local but invading contiguous parts that would render the treatment only palliative.

If the same question was asked the patient, her anxiety would only be aroused when pain was present.

These conditions being present in so many diseases aside from cancer as inflamed adnexa, polyp, senile endometritis, pressure from ovarian or uterine growth, etc., etc., these diseased conditions have no symptomatology that is pathognomonic, so that it becomes imperative that the parts be examined as thoroughly as any other part of the human anatomy, for from the symptoms which seem trivial, death may be lurking. It is said that women will not submit to examinations of these special organs, owing to an inborn modesty that belongs to them. This is fallacious. They certainly should be given the chance, and with the enlightenment of the present age, with a knowledge of the benefits to be derived or the dangers to follow, the number would be very small, and the physician would not have on his conscience the feeling that he had contributed one more to an early grave. With these symptoms in many cases it would require more than the sense of touch or inspection, but in a condition of doubt it should only hasten the physician to add to his suspicions, "Every means that is available to make the diagnosis. The opinion of the pathologist should be secured, again, doubt might continue, for the microscope as an aid, even in the hands of an expert, fails at all times to disclose the true nature of the disease, or show the mysterious workings of pathological anatomy."

This does not argue against the necessity of

resorting to all means available to ascertain the presence of cancers, but should be an incentive to endeavor to relieve by treating the conditions present, or by anticipating serious disease determine it at the earliest possible moment. Again, every physician sees cases of cancer of the womb where the condition has been free from symptoms or suffering that are beyond medical aid.

It is owing to the insidious way that this disease ingrafts itself on to these organs that should actuate us to be alert to the danger and to endeavor to know of the condition present at the earliest possible moment. A crusade against cancer, similar to that for other formidable diseases is sweeping the country at the present time.

To quote from *The Medical Fortnightly*:

"In Germany, Winter of Koenigsberg in three separate papers waged a most vigorous crusade against cancer of the uterus. In December, 1902, he issued to every doctor in East Prussia a pamphlet urging them to make a thorough and painstaking examination in all suspicious cases. He also sent leaflets to midwives pointing out the symptoms of uterine cancer and urging them to send to their physicians all patients who presented any such symptoms. In addition to this he published in the most popular newspaper 'A Word of Advice to Womankind,' in which the significance of irregular hemorrhage, etc., was given and all patients having any suspicious symptoms were urged to go to their physicians for advice and to act upon the advice given without any possible delay. To operating gynecologists he wrote asking them to keep a register of their cases."

"In 1899 Dührssen wrote a paper on the 'Prevention of Cancer,' which recommended the publication of a popular brochure dealing with the leading symptoms, etc. In 1900 he published such a brochure, and this was subsequently issued as a monograph. In 1892 he published in the *Hygienic Calendar for the Home* a paper entitled 'The Prevention and Cure of Abdominal Cancer in Women.'"

"Prof. Pestalozza, Rome, urges the active propaganda throughout Italy in order to familiarize the people with the insidious onset of cancer of the uterus."

"In Austria the Austrian Cancer Committee published and distributed to all midwives a paper entitled 'Principles of Obstetrics.' In this, stress is laid on the absolute importance of an early diagnosis in all cases of malignant disease. As long as the disease is local it is curable by means of radical operation. Doctors are said to be more to blame for not insisting on a thorough examination of patients presenting suspicious symptoms, and are urged to dismiss from their minds the idea that the disease is incurable."

"At a meeting of the International Congress of Arts and Sciences held in St. Louis on September 24, 1904, the Gynecological Section passed a resolution requesting the American Medical As-

sociation to suggest means for increasing the percentage of cures of uterine cancer. The committee was formed, and submitted a report to the House of Delegates at the Portland meeting of the Association. The report was adopted, and the matter referred to a committee. The committee then suggested that a letter should be sent the individual members of each county medical society, asking them to give the report of the committee (which was sent under separate cover) their most careful consideration. The report was a brief but true and accurate recital of the facts regarding cancer in general, and cancer of the uterus in particular.

"A commission has been formed in Sweden to investigate the question of cancer of the uterus before the public by means of the circulation of pamphlets, viz.: (a) 'The Diagnosis and Examination of Cancer of the Uterus; (b) A Few Words of Advice to Midwives.'"

It is the belief of the author that eventually serum therapy will not only arrest cancer but will produce cure when it is already present. But until the proper serum has been discovered and the technic of its use worked out, much can be done by prevention. Recognizing that the majority of cases occur in women who have borne children, that the parturient act predisposes to cancer through trauma, injuring the birth canal, or even in some cases by retained products as chorio epithelium. These conditions demand our most careful consideration and prompt action, whenever examination or symptoms lead us to suspect any deviation from the normal. The tendency of the profession and the gynecological specialist, as well, is to ignore slight lacerations, even deep ones, if they do not give rise to marked subjective symptoms. Is this right? Would we knowingly let the mad dog run riot believing we are immune from its bite?

Repair of these lacerations, uncomplicated is free from all bad results and it restores the parts to a normal state with as slight predisposition to cancer as in the nulliparous state. This is the consensus of opinion, of all investigators. If this is the axiom, we have failed to do all we could by neglecting to repair the injured parts. Repair does more, a large percentage of cases of lacerations predispose to pain by the resulting cicatricial tissue pressing on nerve terminals, causing subinvolution, erosions, displacements and a prolonged list of following pathology, would be prevented, and materially lessen the occurrence of cancer.

It might be well for us to reflect upon this procedure before giving utterance to preconceived ideas and teachings. This would be prophylactic medicine, and is it not as worthy of our consideration as any condition that is being considered by our profession? The teaching and practice of dealing with cancer of the breast has been evolved after a long period, and the results are constantly improving. Operate early, and remove as extensively as possible all tissues that are involved. Operation for cancer of the womb

if it is appreciated early, is attended by better results than that for cancer of the breast. It has its inception in organs that are distinct and designated for a special function. For the most part cancer originates in the womb when the tissues are wasting, after having served their span of usefulness, or at the menopause.

While cancer here is more liable to be local in its inception than in other parts of the body, like cancer elsewhere, it is subject to metastasis. In the variety affecting the squamous epithelium of the vaginal portion, the transmission to other parts is slight until it has involved vaginal tissue or extended upwards to the glandular portion of the cervix. In the varieties affecting cylindrical epithelium, as the disease develops it is carried into the broad ligaments and glands of the pelvis in the same manner as cancer of the breast extends to the axillary lymphatics. The uncertainty of appreciating whether the pelvic glands are affected, will always be difficult to thoroughly diagnose, and upon the presence of absence of involvement, the prognosis must depend, and the advisability of trying to eradicate the disease by medical or surgical measures. When and how to operate is beyond the scope of this paper with the time allotted me, but in passing I desire to say that hysterectomy for cancer of the uterus, with complications that must arise at times, is a very formidable procedure, and by the method of Wertheim of dissecting out the glands of the posterior pelvis, will always be followed by a high mortality at the hands of many operators who are invading this field. In conclusion I desire to quote from the most excellent article of John A. Simpson of Albany.

"The classical symptoms of uterine cancer, *i. e.*, bleeding, a foul discharge, pain and cachexia, bear the same relation to uterine cancer as abdominal distension, fecal vomiting, a high temperature, pinched expression, and rapid pulse, bear to appendicitis. It is true that the former are often the symptoms of uterine cancer, but they are also those of approaching death, and, unfortunately, only too often not only a prolonged one, but also an unnecessary one. We should realize that the classical symptoms of uterine cancer, while there may be a chance for a cure, is uterine bleeding, whether slight or profuse, constant or inconstant, and that every case of uterine bleeding must be considered a possible one of uterine cancer, until proved otherwise. What we need is the prophylaxis of the incurable stage, of uterine cancer, and that is possible in the majority of cases, but only by the education of the physician, and through him the patient, and it is to the physician that this contribution is offered. All that is necessary is the determination on our part to make a diagnosis in every case of uterine bleeding. In order to further this cause, we should obtain the co-operation of our patients, which can only be accomplished by their proper instruction as to the importance of an early diag-

nosis when uterine bleeding is present, and especially when slight, inconstant, and painless, the one type they are so apt to neglect, the very type which beginning cancer causes, and often the most malignant variety.

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WERDER—Importance of early diagnosis and treatment of carcinoma of the uterus. *Ohio Med. Jour.*, 1907-8, v. 3, pp. 187-191.

COBB—Report of a case of cancer of the uterus. *Boston Med. and Surg. Jour.*, 1907, v. 156, pp. 36-39.

THRING—On the radical abdominal operation for uterine cancer. *Jour. Obst. and Gynec. of the Brit. Emp.*, 1907, v. 11, pp. 239-245.

WELLS—Hysterectomy for cancer of the uterus. *Am. Jour. of Obst.*, 1909, v. 55, pp. 552-554.

CORRESPONDENCE.

January 22, 1910.

Dr. A. T. Bristow, Editor *New York State Journal of Medicine*, New York City:

DEAR DOCTOR:—The December number of the *NEW YORK STATE JOURNAL* has just come under my observation, and I have read with much interest your Editorial on the Economics of Medicine. It interests me greatly for three reasons: first because I have just undertaken to conduct a Department of Medical Economics in the *Western Medical Review* (Omaha), to begin with the February number; second, because I had the honor of presenting a paper somewhat along the same lines to the Nebraska State Medical Association at the last annual meeting, May, 1909, under the title, "The Application of Business Methods to the Practice of Medicine," to be in print about April or May, 1910, and lastly, because of your comment on the need of higher fees, etc., and this is what induces me to write to you.

Something over two years ago, a movement toward higher fees began in this part of Nebraska, and the physicians of different communities quietly got together, and discussed the matter and agreed on schedules suited to their needs, printed the schedules in all the local papers, accompanied by a manifesto, like the enclosure, and the thing was done. It has created no commotion, the physicians are living up to the new schedules, and conditions are vastly improved. On the fee bill enclosed the old rate is noted with a lead pencil. It may not be so easy to do this in New York State as in Nebraska; but it works all right here.

I also enclose a copy of a resolution passed at a district medical society meeting on the 18th inst., looking toward freeing the profession from a custom that is inconsistent with the plain dictates of common sense.

Fraternally yours,

F. A. LONG,

(Pres., 1906-7, Neb. State Medical Assn.)  
(Neb., Member, National Legislative Council.)

"PREACHERS MUST PAY.

"The following resolution was introduced by Dr. F. A. Long of this city at the meeting of the Elkhorn Valley Medical Association at Norfolk Tuesday afternoon:

"Whereas, It has been a wellnigh universal custom for members of the medical profession to render gratuitous service to ministers of the Gospel and their dependents, the custom dating back to a time when ministers were dependent on free-will offerings for their support, and

"Whereas, Under present day conditions ministers are salaried, the same as people in other callings, and their

salaries average well in comparison with the salaries of educators, employes in banks and similar vocations, therefore,

"RESOLVED, That we, the physicians here present, believe that a continuation of this custom is not called for under the present social organization, and should be discouraged, as being inimical to the best interests of the ministers, of the medical profession and of society in general, in that it fosters a spirit of dependence in the ministry, imposes an obligation on the medical profession inconsistent with everyday business principles and is embarrassing to society in its efforts to finance the church."

"DOCTORS' FEES.

"With the general advance in the price of commodities, the physicians' charges alone, have not kept pace. Up to the present, the rates of the local physicians for medical services have remained the same since pioneer days. Increased expenses have induced physicians in neighboring towns and elsewhere to revise the schedule of fees to conform to present day conditions, and the physicians of Madison, guided by the same impulse and the desire to maintain uniformity in prices, will on and after October 10, 1907, recognize the following as their standard:

FEE BILL.	<i>New.</i>	<i>Old.</i>
Town visits, daytime .....	\$1.50	\$1.00
Town visits, night .....	2.00	1.00
Country visits, daytime, mileage and.....	1.50	.50
Country visits, night, additional.....	1.00	.00
Wayside calls, mileage and .....	2.00	—
Normal labor .....	15.00	10.00
Instrumental delivery, \$20 and upward; old price, \$15 to \$25.		
Administering anaesthetics, mileage and...	10.00	10.00
Consultation, mileage and.....	10.00	10.00
Office consultation and examination, \$1.00 to	5.00	
Simple prescription .....	.50	
Surgical dressing, \$1.00 and upward.		
Removing foreign body from eye, ear, nose or throat, \$1.00 and upward.		

F. A. LONG, M.D.,  
E. N. SMART, M.D.,  
M. D. BAKER, M.D.,  
A. E. GADBOIS, M.D.,  
THOS. H. LONG, M.D.

Madison, County seat, City of 2,000 people.

To the Editor of the New York State Medical Journal:

In the December issue you invite the opinion of the profession on the question of Economics of Medicine. Allow me to express my views on the subject:

Regarding organization as a remedy for medical evils, you ask "Is it capable of application?" "Who will suggest a better remedy?" My answer to these questions is: Organization is the only remedy. The most important point is what kind of organization. To succeed, the organization must be of a purely business character. It shall be independent of the scientific medical societies. It must be of a political nature as well.

The plan is as follows:

Every assembly district should have a medical organization, call it a medical club if you please. Every medical man in the district, irrespective of school or politics, should be induced to become a member. It should be non-partisan as far as the protection of the profession and the welfare of the public is concerned.

A certain number of medical men should be elected to the Assembly and Senate and also to Congress. This is most important. As long as the medical profession will entrust its affairs to the hands of the lay politicians there can be no relief to the evils that you mention in your articles. Ten Turkish bath rubbers, half a dozen spectacle peddlers and a few bartenders are worth more to the politicians than a hundred Jacobis and Flexners.

The organization cannot be on the principle of a

trade union, because a physician is not a manual laborer, his work cannot be adjusted by the amount of work done per hour, day or week. The medical practitioner must charge according to the means of his patients. Every practitioner must know his own business. He has a right to charge his fees according to circumstances. There cannot be a strict rule what the individual practitioner should charge. It is obvious that your suggestion of raising the fees has nothing to do with organization.

The suggestion of organization as outlined above I made in 1888, and the course of events has corroborated my diagnosis, and if this plan is adopted I hope to see my prognosis confirmed.

Fraternally yours,  
L. W. ZWISOHN.

ONE REMEDY.

THE leading editorial in the December number of the NEW YORK STATE JOURNAL OF MEDICINE entitled "The Economics of Medicine," must have been widely read and should be carefully studied by all those interested in the future of medicine as a profession. That the practice of legitimate medicine to-day yields an income ridiculously small for the capital invested, and the amount of work performed, is only too true. In proof of this it is unnecessary to go into history, or to quote statistics, the facts are plain to those who have eyes to see and ears to hear. Existing conditions require the doctor to do entirely too much work for nothing, and he who serves the community without exacting his pay goes under. A doctor must make money whatever else he does or does not do, otherwise he must forego marriage or doom his wife and children to poverty and unhappiness.

Why does medicine no longer pay? It is difficult to know just how to set about proving a fact that to the writer's perception is so universally obvious—especially in our large cities. One can only ask the reader to go about and see for himself. Everywhere he will find the hospitals vieing with each other to secure the greatest number of patients, dispensaries crowded to the doors with patients able to pay 50 cents or \$1.00 for an office visit, while no attempt, or at the best only a half-hearted one, is made to discriminate between those who are worthy and those unworthy of free treatment. These institutions for which the doctor slaves without pay are not controlled by him, dependent as they are upon him for their support, but by a board of laymen. These are drawn from the business world where commercialism reigns supreme and quite naturally fall into the error of judging the means of their institution by the number of patients it treats irrespective of whether they are worthy of such treatment or not. It cannot be long before the manifest absurdity of our present condition of bondage will become patent to all. Then the profession will take the control of the practice of medicine, especially the charity practice, into their own hands where it fitly belongs, and keep it there. Already we are strongly organized. Let us use our strength to

fight as well for the economic advance of medicine as we have for medicine as a science. Let every medical society throughout the land give to this subject for the coming year the serious and sincere attention it deserves and it will not be long before we witness the dawn of a new era in medical practice. C. G. C. JR.

### IS THIS A REMEDY?

By S. BUSBY ALLEN, M.D.

RIVERHEAD, N. Y.

IT MUST be acknowledged that with one exception, there is complete antagonism between the interests of the public and the interest of the doctors. Its calamity is our opportunity. We reap our harvest from its misfortune. A long illness with a slow convalescence means a large bill. It is to the doctor's interest to emphasize the gravity of a case; to make more calls than might be absolutely necessary. In many cases where a consultation is desirable the doctor may hesitate because he knows, or believes, he would lose the family if he should show any want of confidence. It is to the interest of the doctor to allow patients to humbug themselves by thinking they are ill when they are not; by a blind faith in drugs instead of correcting their mode of life, overwork, underwork, hygiene, dietetics; in deciding whether an operation is necessary or not; if there is an operation there is a large fee; otherwise there is only an office consultation. Preventive medicine is all against the doctor's interest. Hospitals, boards of health, whatever will prevent, lessen, or cure disease, is against his interest. The foregoing is modified by one exception: It is the doctor's interest to have good results, to save life, and to restore to health and vigor. Here the doctor's interest and the patient's are at one. The irreconcilable interests, the deep antagonism has resulted in a latent resentfulness towards the profession that is the stock in trade of the plaintiff in malpractice trials, in anti-vivisection movements, in the support given to schisms, charlatans, Eddyism, Emanuelism, etc. Is there no way in which these interests can be reconciled? The present relations are bad for the public. Let us see how it affects the physician.

To offset all the temptations we have been considering he has the restraints of character and the wonderful stimulus of association with his medical brethren. Sooner or later the general public will judge him correctly. Influenced then by all temptations and restraints, he is more or less a decent doctor. More and more he feels his load increasing. Nothing succeeds like success. He is judged largely by the size of his practice, and the externals that surround him. These cost money, and so he works seven days and many nights in the week. No time for culture, or leisure, for rest; scarcely time for the medical

societies; to read his journals and contribute to them once in a while; a tired, overwrought, harassed man, till his health breaks, or he dies, or retires voluntarily. Such a man is not at his best. Let us look at a way out of all this. All that is needed is to organize the profession, and readjust the relations with the public. Take, for instance, as a unit, this county (Suffolk). The County Medical Society is a corporate body, can sue and be sued. A little legislation making the county a medical district, would enable the supervisors to contract with the society for, say, five years, to give the society a sum of money equal to four dollars per head, the population being 80,000, that would give \$320,000. There are about ninety or a hundred doctors, \$200,000 would give an average of \$2,000 for each doctor, \$120,000 would supply medicine, dressings, crutches, trusses, glasses, transportation for the doctor. Then the service would be organized like the army or navy or hospital marine service.

The service could be uniformed, and selected members from different points in the country would be given post-graduate courses.

A part of the force would be always in training, and as the year went by we would have men in every specialty who had been given the best opportunity. The resources of the whole county would be brought to bear on any severe or unusual case. Preventive medicine would then have its day. Every family would be visited; personal and village hygiene taught; pneumonia would be forestalled; contagious diseases would be driven out of the country. The school life regulated as to exercises, ventilation, light, length of work for each child. The life history of every child would be taken and the records kept. So desirable, and undesirable family inheritance, would point the way to marriage; and the rearing of children, which would be founded on knowledge. The overwhelming benefit resulting from such an arrangement both to the public and to the profession is so great as to seem like an idle dream; but as a matter of fact, all we purpose is but the simplest sort of a bargain in which all is fair, and above-board; a bargain where one party does not seek to take advantage of the other, because the advantage is mutual. There is no longer antagonism but at-one-ment. The people of this county are above the average intelligence, it has but few poor; and they are accustomed to commerce, they raise cauliflowers, and potatoes, the price of which varies five cents or more day by day like the stock market. Such a people should be able to say yes or no. It is a bargain. If they do not wish to make such a bargain they should be able to state their objection. The profession in the societies, and medical press, or public press, have an opportunity to state their adhesion or objection.

To my mind the first objection on the part of the public would be their preference for their family doctor; but such an objection could be

easily met, thus: You prefer to always have Doctor X, well have him just as you had him before, pay him just as you paid him before. Your family is four in number, your yearly tax would be sixteen dollars, that with all the calls made by Doctor X when it was his turn to make calls would be deducted from you bill, so you will still be better and no worse off than before. The fees collected for these extra calls would in part go to Dr. X, in part to raise the general average salary, in part to a pension fund.

The public might fear that the attention would be less prompt, that the doctor would not be so interested, as he would no longer be dependent upon the patronage of the individual. This would have to be met by the strictest kind of an organization on the part of the society, records kept of each case as in the Morgan Hospital, the time of the call, when answered, if delayed for what cause, together with diagnosis, treatment, and other particulars. Then, it is always to be noted that the contract is only for five years, and can then be terminated. In the meantime the public is no worse off, for it can have the same relations with the family physician as before, if it so chooses. On the part of the profession to prevent incompetents, and shirks, the records would easily show the case and it could be so arranged as automatically to purge the service of undesirable members. While the marvelous stimulus of association, of the desire for the applause of one's fellows, would accomplish more than the desire for money. If the salary were not equal to the army or navy, the doctor would have a permanent home and social relations, and if not sufficient to retain good men, the county would raise the grant. As for graft, there would be no chance, as it would be simply a matter of bookkeeping, and on a not very large scale at that. The real lions in the way of putting such a scheme in practice would be what Francis Galton in his "Inquiries into Human Faculty," calls the gregarious and slavish instincts of man. The rareness of free and original thought. The hereditary taint due to primeval barbarism of our race, and maintained by later influences. However, let us hope each village has its one to six or seven doctors, men of influence. Let them talk it over with their intelligent patients. Let us hear what are the objections on the part of the public, and on the part of the doctors, a free, and fearless discussion, and when the matter is ripe, let us bring it to vote. Once tried, I believe it will never be abandoned, but will be elaborated and improved. To further quote Galton, "The character of the corporate action of a nation (or county), in which each man judges for himself, might be expected to possess statistical constancy. It would be the expression of the dominant character of a large number of separate members of the same race, and ought therefore to be remarkably uniform."

## Medical Society of the State of New York.

The annual reports of officers and committees and the minutes of the meeting of the House of Delegates of the Medical Society of the State of New York, held in Albany, January 24 and 25, 1910, will be published as a supplement to the March issue of the JOURNAL.

WISNER R. TOWNSEND, Secretary.

### MEETING OF THE COUNCIL.

A regular meeting of the Council of the Medical Society of the State of New York was held in the Court of Sessions, City Hall, Albany, on January 26, 1910, at 5 P. M. Dr. Charles Jewett, President, in the chair. Dr. Wisner R. Townsend, Secretary.

There were present Drs. Charles Jewett, Charles W. M. Brown, Thomas H. Halsted, Dayton L. Kathan, Andrew MacFarlane, Theodore D. Mills, Edward Munson, William J. Nellis, Leo H. Neuman, William W. Skinner, Charles Stover and Wisner R. Townsend.

The minutes of the last meeting were read and approved.

Moved, seconded and carried that a Committee on Publication be appointed to consist of the Secretary and the Treasurer and three other members.

Dr. Jewett appointed Drs. Julius C. Bierwirth, Samuel E. Getty, Alexander Lambert, Samuel W. S. Toms and Wisner R. Townsend.

Moved, seconded and carried that Dr. A. T. Bristow be appointed editor until the next annual meeting of the Society at the same salary as last year.

Moved, seconded and carried that Mr. James Taylor Lewis be appointed Counsel until the next annual meeting of the Society at the same salary as last year.

Moved, seconded and carried that the Honorarium of \$1,000, voted by Mr. Lewis, Counsel, at the meeting of the House of Delegates, January 25, 1910, be approved, and that the Treasurer be directed to pay the same.

Moved, seconded and carried that officers, members of committees and delegates of the Medical Society of the State of New York may have their railroad fares paid to and from all meetings when traveling on business of the Society.

Moved, seconded and carried that a Committee of three be appointed, of which the Secretary of the Society shall be the Chairman, to pass on such amendments or alterations as may be submitted by County Societies to their Constitution and By-Laws.

The President appointed Drs. Andrew MacFarlane, Charles Stover and Wisner R. Townsend.

Moved, seconded and carried that a Committee on Finance be appointed to consist of three members including the President.

Dr. Jewett appointed Drs. Alexander Lambert and Frank Van Fleet.

Moved, seconded and carried that the duties of the Finance Committee be to authorize such expenditures as they consider advisable and that the officers and chairmen of committees incur no expense on behalf of the Society, except railroad fares, without the approval of said Committee.

Moved, seconded and carried that the resolution presented by Drs. Barber and Hulett at the morning scientific session on January 26th, and which was referred to the Council by the President, be received and placed on file.

Moved, seconded and carried that the resolution embodied in the paper presented by Dr. Charles Stover at the same meeting which was as follows, be adopted:

"That the President appoint a special committee on Nurses' Training Schools consisting of five members to confer with the State Department of Education when necessary; to affiliate with other organizations in matters of common interest; to co-operate with the Com-

mittee on Legislation and generally to advance the mutual interests of this Society and Nurses' Training Schools."

Moved, seconded and carried that the chairmen of standing committees appoint the other members of their committees, subject to the approval of the Council at the May meeting.

Moved, seconded and carried that the bond of the Treasurer be placed at \$5,000.

There being no further business, the minutes of the meeting were read and approved and ordered published in the JOURNAL. The meeting then adjourned.

WISNER R. TOWNSEND, Secretary.

MEETING OF THE CENSORS.

A meeting of the Censors of the Medical Society of the State of New York was held in the Court of Sessions, City Hall, Albany, on January 26, 1910, at 6 P. M. Dr. Charles Jewett, President, in the chair. Dr. Wisner R. Townsend, Secretary.

Present: Drs. Charles Jewett, Charles W. M. Brown, Dayton L. Kathan, Andrew MacFarlane, Theodore D. Mills, Edward Munson, William W. Skinner, Charles Stover and Wisner R. Townsend.

Moved by Dr. MacFarlane, seconded by Dr. Stover and upon vote unanimously carried, that the President and Secretary of the State Society and Mr. Lewis, Counsel of the Society, be appointed a Committee to formulate a form of procedure for the Censors, to consider the charges preferred by Dr. Frederic R. Sturgis of the Medical Society of the State of New York against the Medical Society of the County of New York, which charges were referred to the Censors by the House of Delegates at their meeting held on January 26, 1910.

There being no further business the meeting then adjourned.

WISNER R. TOWNSEND, Secretary.

REMOVAL NOTICE.

WILLIAM S. STONE, M.D., 113 East 62d Street, New York. Telephone, Plaza 4986.

NOTICE.

To the Secretary of Each State and County Medical Society, and Other Interested Members:

At the last meeting of the American Medical Association at Atlantic City, the following report of Committee on Miscellaneous Business was adopted: "The Committee recommends that the President of this Association appoint a Committee of five members to inquire into the desirability and practicability of establishing under the auspices of the American Medical Association, a fund for the assistance of physicians disabled by sickness, and for a sanatorium for the treatment of such members of the Association as may be afflicted with tuberculosis or similar diseases; such committee to report to the House of Delegates at the next annual meeting of the Association."

As a basis for wise action the Committee asks that the officers of State and County Medical Societies, and others interested in the subject, should at the earliest possible date, forward to the Secretary of the Committee, D. A. C. Magruder, Colorado Springs, Colorado, answers to the following queries, with some account of any special cases that seem to illustrate the need for provision for disabled members of our profession.

1. Is there any provision by your State Medical Society, or local society, for the care of destitute and disabled physicians and those dependent upon them? If so, how is such care provided for?

2. What number of instances of special need for such assistance have arisen in your locality within the last five years?

3. About how many members of your County Medical Society are at present afflicted with tuberculosis or

similar diseases; or have, within the last five years died, or withdrawn from professional work on account of such diseases?

It is requested that this matter be brought before each local society at its next regular meeting, and the desired information furnished at the earliest possible date.

Fraternally yours,

EDWARD JACKSON, Denver, Col.,  
JEFFERSON R. KEAN, Washington, D. C.,  
A. T. BRISTOW, Brooklyn, N. Y.,  
H. B. ELLIS, Los Angeles, Cal.,  
A. C. MAGRUDER, Secretary,  
305 N. Tejon St., Colorado Springs, Col.

MEDICAL REVIEW OF REVIEWS.

Beginning with the January, 1910, issue the old established *Medical Review of Reviews* will be edited by Dr. William J. Robinson, Editor and founder of the famous *Critic and Guide, Therapeutic Medicine*, and *The American Journal of Urology*.

The Editorial Offices of the *Medical Review of Reviews* have been removed to 12 Mt. Morris Park W., New York City.

The scope of the journal will be enlarged and every department will be strengthened. The subscription price remains the same, namely, \$2.00 per annum.

LEGISLATIVE NOTES.

STANDING COMMITTEES OF THE ASSEMBLY FOR 1910.

ON THE JUDICIARY—J. S. Phillips, Allegany Co.; J. H. Walters, Onondaga Co.; Artemus Ward, Jr., New York Co.; F. L. Howard, Tioga Co.; C. W. Phillips, Monroe Co.; J. L. Sullivan, Chautauqua Co.; M. I. Greenwood, Wayne Co.; F. L. Young, Westchester Co.; H. J. Hinman, Albany Co.; L. C. Wilkie, Erie Co.; Mark Goldberg, New York Co.; L. S. Chanler, Dutchess Co.; M. A. O'Neil, Kings Co.

ON AFFAIRS OF CITIES—J. L. Whitley, Monroe Co.; W. I. Lee, Kings Co.; R. S. Conklin, New York Co.; G. A. Green, Kings Co.; H. W. Haines, Westchester Co.; O. J. Weimert, Erie Co.; W. E. Nolan, Albany Co.; F. R. Toombs, New York Co.; T. P. Wilsnack, Queens Co.; H. E. Allen, Oneida Co.; A. E. Smith, New York Co.; J. A. Foley, New York Co.; J. H. Donnelly, Kings Co.

ON PUBLIC HEALTH—G. H. Wood, Jefferson Co.; C. F. Brown, Cortland Co.; J. L. Miller, Steuben Co.; H. Kopp, New York Co.; E. J. L. Raldiris, New York Co.; G. S. Eveleth, Herkimer Co.; L. S. Pitkin, Jefferson Co.; I. J. Joseph, New York Co.; A. J. Levy, New York Co.; P. J. Keller, Niagara Co.; C. Metzendorf, Queens Co.

ON RULES—J. W. Wadsworth, Jr., Livingston Co.; E. A. Merritt, Jr., St. Lawrence Co.; J. S. Phillips, Allegany Co.; R. S. Conklin, New York Co.; D. D. Frisbie, Schoharie Co.; James Oliver, New York Co.

STANDING COMMITTEES OF THE SENATE FOR 1910.

ON JUDICIARY—G. A. Davis, G. H. Cobb, H. D. Hinman, W. J. Grattan, J. M. Wainwright, G. L. Meade, J. F. Schlosser, H. P. Coats, J. P. Allds, R. F. Wagner, G. M. S. Schulz, H. R. Bayne, T. F. Grady.

ON AFFAIRS OF CITIES—H. D. Hinman, G. A. Davis, G. L. Meade, F. M. Davenport, E. M. Travis, J. T. Newcomb, H. S. Holden, J. B. Rose, J. P. Allds, S. J. Ramsperger, J. J. Frawley, T. H. Cullen, T. F. Grady.

ON PUBLIC HEALTH—G. H. Witter, F. C. Platt, John Kissel, C. J. White, A. W. Burlingame, Jr., G. M. S. Schulz, W. J. A. Caffrey.

ON RULES—J. P. Allds, G. A. Davis, T. F. Grady.

## BILLS INTRODUCED INTO THE LEGISLATURE.

January 5 to January 21, 1910.

### IN ASSEMBLY.

- An Act to amend section 5 of chapter 725, Laws of 1905, relative to the acquisition of property by the City of New York for a water supply and the compensation of commissioners of appraisal. By Mr. Bates. To Electricity, Gas and Water Committees. Printed No. 2. Int. 2.
- An Act appropriating \$100,000 for the reconstruction of buildings of the Long Island State Hospital at Flatbush, Long Island. By Mr. Lee. To Ways and Means Committee. (Same as S. 2.) Printed No. 16. Int. 16.
- An Act to amend the State Charities Law by adding a new article 24, providing for the establishment of a State Hospital in some suitable locality for the treatment of intermediate and advanced pulmonary tuberculosis, and appropriating \$150,000 therefor. By Mr. McGrath. To Ways and Means Committee. Printed No. 17. Int. 17.
- An Act to legalize certain acts of the voters of the village of Farmingdale, Nassau County, and to authorize the purchase and extension of the water works system of the Nassau County Water Company. By Mr. W. G. Miller. To Villages Committee. Printed No. 18. Int. 18.
- An Act to amend the Agricultural Law, by adding a new section 109, relative to stock yards in which live stock is bought or sold. By Mr. MacGregor. To Agriculture Committee. Printed No. 28. Int. 28.
- An Act to confer certain rights upon the city of Mount Vernon and upon the city of New York, with respect to supplying water to Mount Vernon from the water supply of New York City. By Mr. Coffey. To Electricity, Gas and Water Committees. (Same as S. 37.) Printed No. 52. Int. 52.
- An Act to legalize the proceedings of the city of Newburgh, relative to an issue of bonds for enlarging and improving the water works thereof. By Mr. Baumes. To Cities Committees. (Same as S. 53.) Printed No. 60. Int. 60.
- An Act to amend section 40 of the Insanity Law by adding a new subdivision 14, relative to the Mohansic State Hospital for the Insane, and establishing such hospital. By Mr. Goodwin. To Ways and Means Committee. (Same as S. 38.) Printed No. 66. Int. 66.
- An Act to provide for the expense of building a trunk sewer for the drainage of portions of the 8th, 22d, 29th, 30th and 31st wards in the Borough of Brooklyn. By Mr. O'Connor. To Cities Committee. (Same as S. 1.) Printed No. 76. Int. 76.
- An Act making appropriations for coal for the State institutions reporting to the fiscal supervisors of State Charities. By Mr. Merritt. To Ways and Means Committee. Printed No. 80. Int. 80.
- An Act to provide additional funds for the maintenance of State hospitals and to provide deficiencies in maintenance account for the year ending September 30, 1910. By Mr. Merritt. To Ways and Means Committee. Printed No. 81. Int. 81.

An Act to amend section 17 of the Insanity Law, relative to accommodations for the insane. By Mr. Merritt. To Ways and Means Committee. Printed No. 82. Int. 82.

An Act to amend chapter 756, Laws of 1907, relative to the city physician of the city of Schenectady. By Mr. L. H. White. To Cities Committee. (Same as S. 58.) Printed No. 102. Int. 102.

An Act to amend chapter 698, Laws of 1907, relative to the issuing of bonds for the water department of the city of Cortland. To third reading when introduced. By Mr. C. F. Brown. To Cities Committee. (Same as S. 63.) Printed Nos. 103, 146. Int. 103.

An Act making appropriations for Letchworth Village. By Mr. Merritt. To Ways and Means Committee. (Same as S. 102.) Printed No. 151. Int. 150.

An Act to amend the Education Law by adding a new section, 952, relative to powers of the trustees of the New York State School for the Blind. By Mr. Crocker. To Ways and Means Committee. (Same as S. 101.) Printed No. 163. Int. 162.

An Act appropriating \$636,000 for the construction of buildings and improvements for the New York State Training School for Boys. By Mr. Merritt. To Ways and Means Committee. Printed No. 171. Int. 170.

### IN SENATE.

An Act to provide for the expense of building and constructing a trunk sewer for the drainage of portions of the 8th, 22d, 29th, 30th and 31st wards in the Borough of Brooklyn, city of New York. By Mr. Cronin. To Cities Committee. (Same as A. 76.) Printed No. 1. Int. 1.

An Act making an appropriation for the reconstruction of the buildings of the Long Island State Hospital, at Flatbush, Long Island. By Mr. Travis. To Finance Committee. (Same as A. 16.) Printed No. 2. Int. 2.

An Act to confer certain rights upon the city of Mount Vernon and upon the city of New York, relative to supplying water to said city of Mount Vernon. By Mr. Wainwright. To Cities Committee. (Same as A. 52.) Printed No. 37. Int. 37.

An Act to amend section 40 of the Insanity Law, relative to the Mohansic State Hospital for the Insane, establishing such hospital and providing for its maintenance and control. By Mr. Wainwright. To Judiciary Committee. (Same as A. 66.) Printed No. 38. Int. 38.

An Act to legalize the proceedings of the city of Newburgh, relative to the issuance of bonds for improving the water works thereof. By Mr. Rose. To Judiciary Committee. (Same as A. 60.) Printed No. 53. Int. 53.

An Act to amend chapter 756, Laws of 1907, relative to the city physician of the city of Schenectady. By Mr. Gardner. To Cities Committee. (Same as A. 102.) Printed No. 58. Int. 58.

An Act to amend chapter 698, Laws of 1907, relative to the issuing of water bonds for the city of Cortland. By Mr. Hewitt. To Cities Committee. (Same as A. 103.) Printed No. 63. Int. 63.

An Act to amend the Public Health Law, by adding a new article 11, relative to the practice of pharmacy. By Mr. Hill. To Public Health Committee. (Same as A. 137.) Printed No. 66. Int. 66.

An Act to amend section 229 of the Education Law, by adding a new subdivision, 16-a, providing for medical inspection of all children attending schools. By Mr. Mackenzie. To Education Committee. Printed No. 86. Int. 86.

An Act to amend section 49 of the State Charities Law, relative to contracts for connecting any charitable institution with a system or line maintained or operated by a public service corporation. By Mr. Hill. To Judiciary Committee. (Same as A. 132.) Printed No. 88. Int. 88.



An Act to amend the Education Law by adding a new section, 962, relative to the powers of the Trustees of the New York State School for the Blind. By Mr. Witter. To Education Committee. (Same as A. 162.) Printed No. 101. Int. 101.  
An Act to amend section 5 of chapter 725, Laws of 1905, relative to the compensation of Commissioners of Appraisal, appointed to appraise the value of land needed by the State of New York for the water supply. By Mr. Agnew. To Cities Committee. (Same as A. 2.) Printed No. 103. Int. 103.

COUNTY SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF CHAUTAUQUA.

ANNUAL MEETING AT DUNKIRK, DECEMBER 14, 1909.

The following officers were elected: President—E. Rood, Westfield; 1st Vice-President, E. A. Scofield, Bemus Point; 2d Vice-President—H. A. Eastman, Jamestown; Secretary-Treasurer—J. W. Morris, Jamestown; Censors—V. M. Griswold, E. M. Scofield, G. F. Smith.

Delegate to State Society—N. G. Richmond.  
Alternate—W. M. Bemus.

In the scientific session, papers were read by Drs. W. M. Bemus, L. D. Bowman, V. D. Bozovsky and V. M. Griswold.

MEDICAL SOCIETY OF THE COUNTY OF CATTARAUGUS.

ANNUAL MEETING AT SALAMANCA, N. Y., TUESDAY, JANUARY 4, 1910.

The meeting was called to order at 2 P. M. by the Vice-President Dr. Lake.

The minutes of the meeting and of the special emergency meeting were read and approved.

The following officers were elected: President—Charles Kelley, Franklinville; Vice-President—Ira W. Livermore, Gowanda; Secretary-Treasurer—Benjamin Van Campen, Olean. Censors—S. S. Bedient, A. D. Lake, E. Torrey, F. C. Beals and H. Ashley.

Delegate to State Society—F. C. Beals.

The Reports of the Secretary and Treasurer were read and it was moved, seconded and carried that they be accepted and filed.

Moved, seconded and carried that the Secretary be instructed to write a letter to the various Masonic orders expressing the appreciation of the Society for the use of the Masonic parlors for the medical meetings of the society.

Moved by Dr. Torrey and seconded by Dr. Mountain that Dr. Lake of Gowanda, Dr. Taggart of Salamanca and Dr. Van Campen of Olean act as a committee to confer with the committee from the Board of Supervisors in regard to the establishment of all hospital in the County of Cattaraugus for the care and treatment of persons suffering from tuberculosis. Motion carried.

Moved, seconded and carried that the Chair appoint a committee of three, one of whom shall be the Secretary, to make arrangements for a banquet to be held at the next meeting, place to be selected by the Committee and the Comitia Minora.

Moved, seconded and carried that the delegate to the State Society be instructed to vote in favor of admission to the County and State Society of physicians who are doing Institutional work.

SCIENTIFIC SESSION.

"A New Phase of Prostatic Hypertrophy," Nelson W. Wilson, Buffalo.

Owing to illness Dr. Max Kaiser of Buffalo was unable to present his paper.

MEDICAL SOCIETY OF THE COUNTY OF CATTARAUGUS.

SPECIAL MEETING, SALAMANCA, N. Y., MONDAY, NOVEMBER 29, 1909.

Dr. Cassar Smith acted as Chairman.

The following resolution was offered by J. E. K. Morris and seconded by T. B. Loughlen:

WHEREAS, We, the Medical Society of the County of Cattaraugus having on the fifth day of October, 1909, at a regular meeting, held in the Masonic Parlors, passed a resolution stating "that it would be inadvisable at the present time to have established in the County of Cattaraugus a hospital for the care and treatment of patients suffering from tuberculosis and recommended that the Board of Supervisors of Cattaraugus set aside a building at the County farm at Machias, N. Y., for the care and treatment of the County poor suffering from tuberculosis," and having delegated a committee to present said resolutions to the Board of Supervisors, do resolve the following:

"That since the aforesaid resolution was not in accordance with Chapter 341 of the Laws of 1909, we do hereby rescind that portion of the resolution referring to the establishment of a county hospital for the care of persons suffering from tuberculosis and do restrict the report of the Committee to the subject of the County Laboratory."

The above resolution was passed by 13 votes. No votes in the negative.

The following resolution was presented by Dr. James Taggart and seconded by Dr. Torrey:

"To the Board of Supervisors of Cattaraugus County:

WHEREAS, Your honorable body has referred to the Medical Society of the County of Cattaraugus the question of the establishment of a hospital in Cattaraugus County for the care and treatment of persons suffering from the disease known as tuberculosis, we, the Medical Society of the County of Cattaraugus firmly believing that the best measure for the prevention of the disease known as tuberculosis is the segregation of persons suffering from the disease, do respectfully recommend the following:

I. That the Board of Supervisors of the County of Cattaraugus, in pursuance of the authority conferred by Chapter 341 of the Laws of 1909, establish a county hospital in the county of Cattaraugus for the care and treatment of persons suffering from the disease known as tuberculosis; provided, however, that the total cost of such hospital, including the purchase of a site, and the erection of all necessary buildings and the equipment thereof shall not exceed the sum of fifteen thousand dollars.

The above resolution was carried by 13 votes. None in the negative.

Moved by Dr. Torrey and seconded by Dr. Morris that the Chair appoint a committee of five to confer with the Board of Supervisors. Carried.

The Chair appointed the following: E. Torrey, W. B. Johnston, J. A. Taggart, M. C. Hawley, E. M. Coss.

Moved by Dr. Morris and seconded by Dr. Taggart that a copy of these resolutions be signed by the Chairman and Secretary and be sent to the Board of Supervisors. Carried.

MEDICAL SOCIETY OF THE COUNTY OF RENSSELAER.

ANNUAL MEETING AT TROY, DECEMBER 15, 1909.

The following officers were elected for the ensuing year: President—E. R. Stillman, Troy; Vice-President Michael Keenan, Troy; Secretary—John H. F. Coughlin, Troy; Treasurer—O. F. Kinloch, Troy; Censors—J. A. Barnes, Troy, and J. T. Flynn, Troy.

Delegates to State Society—J. B. Harvie, and William Kirk, of Troy.

Delegate to Third District Branch—H. Elliott, Troy.

SCIENTIFIC SESSION.

President's Address, "Pleurisy with Effusion," J. W. Carey, M.D., Troy.

"The Diagnosis of Tumors of the Brain and Spinal Cord, Especially with Reference to Surgical Interference," Wm. G. Spiller, M.D., Philadelphia, Pa.

Owing to the absence of Dr. H. Noguchi, of the Rockefeller Institute of New York City, who had expected to demonstrate the Wasserman Reaction and Its Application, the demonstration was given by Drs. Ordway and Bernstein from the Bender Laboratory.

Immediately after the meeting the members and guests were entertained at a smoker at the Troy Club.

#### MEDICAL SOCIETY OF THE COUNTY OF ONEIDA.

ANNUAL MEETING, JANUARY 11, 1910.

The following officers were elected: President—F. D. Crim, Utica; Vice-President—H. L. Borland, Camden; Secretary—W. B. Roemer, Utica; Treasurer—R. L. Baker, Utica; Librarian—Smith Baker, Utica.

#### MEDICAL SOCIETY OF THE COUNTY OF WESTCHESTER.

REGULAR MEETING, WHITE PLAINS, TUESDAY, JANUARY 18, 1910.

"X-Ray in Fractures," Carl Beck, New York City.

"X-Ray in Treatment," Sinclair Tousey, New York City.

"X-Ray in Diagnosis" (with lantern demonstration), L. G. Cole, New York City.

Discussion by Drs. M. W. Barnum, S. F. Horton, C. Ogilvy, J. T. Gorton, S. O. Myers and C. N. Raymond.

Dr. S. O. Myers exhibited an apparatus of his own construction with which the first X-Ray photographs produced in Westchester County were made.

#### TOMPKINS COUNTY MEDICAL SOCIETY.

The following officers were elected: President—Abram T. Kerr, Ithaca; Vice-President—Harry I. Andrews, Ithaca; Secretary—Lucerne Coville, Ithaca; Treasurer—Willets Wilson, Ithaca.

Comitia Minora—H. B. Besemer, C. P. Biggs, E. Meany, H. L. Van Pelt, W. C. Douglass.

Delegate to State Society—L. Coville.

Delegate to Sixth District Branch—C. P. Biggs.

#### SCIENTIFIC SESSION.

"Relation between the Pituitary Body and the Thyroid Gland," Andrew Hunter, Ithaca.

#### WARREN COUNTY MEDICAL SOCIETY.

ANNUAL MEETING, WEDNESDAY, JANUARY 12, 1910.

The following officers were elected: President—George A. Chapman, Glens Falls; Vice-President—Thomas H. Cunningham, Glens Falls; Secretary-Treasurer—M. Le R. Haviland, Glens Falls; Censors—B. J. Singleton, C. R. Hoffman, V. D. Selleck.

Delegate to State Society—J. M. Griffin, Warrensburg.

The following committees were appointed: Committee on Legislation—W. J. Hunt, J. J. Montgomery, L. Somerville. Committee on Public Health—F. Palmer, A. McKee, C. K. Burk, Lake George.

The following resolution was unanimously carried: "That the annual meeting of the Warren County Medical Society shall take place on the second Wednesday in October and that the semi-annual meeting shall be held on the second Wednesday in April of each year, beginning in the year 1911 at the annual meeting of that year."

Chapter II, Section 8 of the By-Laws was unanimously repealed as requested by the State Society.

#### SCIENTIFIC SESSION.

President's Address, A. E. Barber, Glens Falls.

"The Clinical Value of Blood Pressure," T. H. Cunningham, Glens Falls.

"Some of the Work which the State Department of Health is Endeavoring to Do," F. Palmer, Glens Falls.

"Suppurative Mastoiditis Report of Case," F. G. Fielding, Glens Falls.

#### MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

REGULAR MEETING, WEDNESDAY EVENING, JANUARY 19, 1910.

#### SCIENTIFIC SESSION.

"Unusual Vision in an Epileptic," Christian G. Hacker.  
"Hirschprung's Disease—Congenital Giant Colon— with Report of Case, and Stereopticon Demonstration," H. Judson Lipes.

Discussion by Thomas Ordway.

"Recent Methods of Diagnosis of Typhoid Fever," Thomas Ordway, William B. Bing.

"Demonstrations of Pathological Specimens," Harry Bernstein, Edward J. Riley.

#### MEDICAL SOCIETY OF THE COUNTY OF FULTON.

ANNUAL MEETING AT JOHNSTON, THURSDAY, JANUARY 13, 1910.

The following officers were elected: President—Dennis Murphy, Gloversville; Vice-President—Reuben L. Howland, Broadalbin; Secretary—S. C. Clemans, Gloversville, N. Y.; Treasurer—D. V. Still, Johnston; Censors—J. B. Bates, A. C. Hagedorn, and F. Beebe.

And amendment to the By-Laws was passed changing the date of the Annual Meeting from the second Thursday in January to the second Thursday in December.

#### MEDICAL SOCIETY OF THE COUNTY OF DUTCHESS.

REGULAR MEETING, WEDNESDAY, JANUARY 12, 1910.

#### SCIENTIFIC SESSION.

"The Life History of the Common House Fly and Its Methods of Conveying Disease" (Moving picture lecture and demonstration), Daniel D. Jackson, Director Laboratories of the Water Supply of New York City.

"The Making and Management of Tuberculosis" (A Lantern Demonstration), George W. Goler, Health Officer of Rochester.

#### MEDICAL SOCIETY OF THE COUNTY OF SCHENECTADY.

REGULAR MEETING, WEDNESDAY, JANUARY 19, 1910.

"Mrs. Eddy's Book," Prof. John L. March, of Union College.

"What is Psychotherapy?" N. A. Pashayan, Schenectady.

#### MEDICAL SOCIETY OF THE COUNTY OF FRANKLIN.

ANNUAL MEETING, MALONE, JANUARY 11, 1910.

The following officers were elected for the ensuing year: President—Edward R. Baldwin, Saranac Lake; Vice-President—Albert H. Garvin, Ray Brook; Secretary-Treasurer—George M. Abbott, Saranac Lake; Censor—H. M. Kinghorn, Saranac Lake.

Delegate to State Society—George M. Abbott, Saranac Lake.

#### SCIENTIFIC SESSION.

President's Address: "Our Profession," A. E. Moody, St. Regis Falls.

"Practical Methods in the Hygiene of Tuberculosis," E. R. Baldwin, Saranac Lake.

"Uncinariasis and Some of Its Problems," C. V. R. Bumsted, Lake Placid.

"Observations on My Recent Trip Abroad," J. A. Grant, Malone.

"The Female Gonococcus," R. W. Van Dyke, Malone.

RICHMOND COUNTY MEDICAL SOCIETY.  
REGULAR MEETING, AT STATEN ISLAND ACADEMY,  
JANUARY 12, 1910.

SCIENTIFIC SESSION.

"The von Berquet Test in Diagnosis of Tuberculosis,"  
E. S. Rimer, Quarantine.

"The Early Diagnosis of Tuberculosis—(a) Pulmonary Symptoms; (b) Early Physical Signs; (c) Surgical Tuberculosis;" Discussion by members.

After the meeting a collation was served at the Staten Island Club.

MEDICAL SOCIETY OF THE COUNTY OF  
CHEMUNG.

ANNUAL MEETING, ELMIRA, DECEMBER 21, 1909.

The following officers were elected for the ensuing year: President—E. T. Bush, Horse Heads; Vice-President—F. B. Parke, Elmira; Secretary—Mary H. Robinson, Elmira; Treasurer—G. V. R. Merrill, Elmira; Censors—G. V. R. Merrill, C. G. R. Jennings and R. G. Loop.

Delegate to State Society—R. P. Bush.

Alternate—C. W. M. Brown.

SCIENTIFIC SESSION.

President's Address: "Diagnosis of Cardiac Affections," A. M. Loope, Wellsburg.

"Report of a Case of Foreign Body in Abdomen," R. G. Loope, Elmira.

"Diagnosis and Treatment of Appendicitis," Charles Haase, Elmira.

MEDICAL SOCIETY OF THE COUNTY OF  
GREENE.

REGULAR MEETING, CATSKILL, JANUARY 11, 1910.

"Diseases of the Nasal Accessory Sinuses," E. E. Hinman, Albany.

"Eclampsia with Report of Cases," I. E. Van Hoesen, Coxsackie.

Topic for discussion: "The Treatment of the Vomiting of Pregnancy;" to be opened by C. P. McCabe, M.D., Greenville; W. F. Lamont, M.D., Catskill, alternate.

MEDICAL SOCIETY OF THE COUNTY OF ERIE.

EIGHTY-EIGHTH ANNUAL MEETING, DECEMBER 20, 1909.

President, Dr. Charles A. Wall in the Chair.

Dr. T. H. McKee, Chairman of the Committee on Membership, presented a list of 27 applicants all of whom were recommended by the Committee and duly elected.

The Society's attention was called to the fact that, with the 27 members just elected, the total number of members elected during the year 1909 was 91. This announcement called forth hearty applause as well as a vote of thanks to the Membership Committee, and especially its Chairman, Dr. T. H. McKee, for the magnificent showing.

The minutes of the Council meetings held November 1, 1909, December 6, 1909, and December 18, 1909, were read by the Secretary, and were adopted, together with all the recommendations therein contained (except the question of a permanent meeting place for the Society for the year 1910.)

The adoption of these minutes carried with it also the acceptance of the resignation of Dr. J. Grafton Jones, dated December 17, 1909, in which he resigned his membership in this Society, the Treasurer having reported that Dr. Jones was paid up to the end of the year.

It also carried with it the adoption of a rule recommended by the Council as follows:

"Chapter XIII, Section 2, rules and regulations for the government of the Society and the administration of its affairs, not repugnant to the Constitution and By-Laws of the Medical Society of the State of New York, and any of these By-Laws may be adopted, changed,

amended or suspended at any regular meeting by a three-fourths vote, twenty members being present."

which rule was presented later by President Wall.

Dr. John H. Grant, Chairman of the Board of Censors read his annual report for the year 1909. The report was adopted with recommendations contained therein, and the thanks of the Society given them for their splendid services throughout the year.

The Committee on Legislation, through its Chairman, Dr. F. Park Lewis, made a verbal report of work accomplished during the year and then presented resolutions as follows:

"WHEREAS: Ophthalmia Neonatorum, or birth infections of the eyes of infants is rapidly destructive of sight when untreated, but is amenable to correct and persistent hospital treatment.

"WHEREAS: The necessary treatment cannot be obtained in the home of the poor—and children are in danger of blindness from its neglect and

"WHEREAS: Aside from its humanitarian aspect—the cost to the Commonwealth of educating and maintaining one blind individual amounts to many thousands of dollars, and

"WHEREAS: The treatment is of brief duration and little cost, and

"WHEREAS: No provision now exists whereby immediate and necessary treatment can always be promptly obtained for an infected infant

"Resolved, That such cases are emergencies which admit of no delay.

"Resolved, That this Erie County Medical Society take immediate steps to secure for the City Health Department authority to send the mother and child, when the eyes of the child are infected, to a hospital where proper attention can be secured, the expense to be borne by the City or by the County respectively as the case shall be a city or county charge.

"Resolved, That the Legislative Committee and the Council be directed to take such steps as may be necessary to have enacted a state law giving like authority to any Health Officer in whose jurisdiction such an infection may occur.

"WHEREAS: A large proportion of the births in the cities are cared for by midwives, many of whom are untrained, and services are unsanitary and inadequate, and

"WHEREAS: There is no uniformity in the laws governing their practise in the State:

"Resolved, That this Medical Society of the County of Erie strongly favors the enactment of a uniform State law governing the practise of obstetrics by midwives and providing for their licensing, supervision and legal control."

Report was accepted and resolutions adopted.

Dr. Henry R. Hopkins, Acting Chairman of the Committee on Public Health made the annual report for the Committee. The report and recommendations it contained were unanimously adopted.

Dr. John D. Bonnar, Chairman of the Special Committee on Contagious Disease Hospital, reported concerning the work of said Committee.

The report was adopted and the thanks of the Society extended to the Committee for its labors, and the Committee continued.

Treasurer Lytle then submitted his Annual Report:

"Mr. President: It is a pleasure to state that so much of the fiscal year as can be included in this report has been a very satisfactory one to the Society financially.

"It is also a pleasure to announce that all members have paid all dues and assessments for 1909, and no one will be dropped for non-payment of dues.

"Respectfully submitted,

"ALBERT T. LYTLE"

The Report was received and filed and ordered referred to the Auditing Committee when appointed.

Dr. J. W. Grosvenor, Chairman of the Committee

on Necrology, presented memorials on the deaths of Dr. David C. Eisbein, Dr. John Dambach and Dr. William C. Krauss, and in doing so, he expressed the gratification of the Committee that, among so large a membership, only three members of the Society had died since the last annual meeting.

The election of officers then followed, and the Chair appointed Drs. H. G. Hopkins and L. M. Francis as tellers:

The following officers were elected: President—Grover W. Wende, Buffalo; First Vice-President—Bernard Cohen, Buffalo; Second Vice-President—Frank Helwig, Akron; Secretary—Franklin C. Gram, Buffalo; Treasurer—Albert T. Lytle, Buffalo; Censors—J. H. Grant, DeL. Rochester, W. D. Greene, F. E. Fronczak, and C. L. Brown.

Chairman Committee on Legislation—F. Park Lewis. Chairman Committee on Public Health—Ernest Wende. Chairman Committee on Membership—Thomas H. McKee.

Delegates to State Society—G. W. Wende, A. W. Hurd, W. H. Thornton, and B. Cohen.

President Wall read the following amendment to the rules as presented by the Council and approved of by the State Society, which was then unanimously adopted:

"Chapter XIII, Section 2, Rules and regulations for the government of the Society and the administration of its affairs, not repugnant to the Constitution and By-Laws of the Medical Society of the State of New York, and any of these By-Laws may be adopted, changed, amended or suspended at any regular meeting by a three-fourths vote, 20 members being present.

### BOOKS RECEIVED.

Acknowledgement of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

**INTERNATIONAL CLINICS.** A quarterly of illustrated clinical lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otolaryngology, Rhinology, Laryngology, Hygiene, and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world. Edited by W. T. Longcope, M.D., Philadelphia, U. S. A., with the collaboration of Wm. Osler, M.D., Oxford; John H. Musser, M.D., Philadelphia; A. McPhedran, M.D., Toronto; Frank Billings, M.D., Chicago; Chas. H. Mayo, M.D., Rochester; Thos. H. Rotch, M.D., Boston; John G. Clark, M.D., Philadelphia; James J. Walsh, M.D., New York; J. W. Ballantyne, M.D., Edinburgh; John Harold, M.D., London, and Richard Kretz, M.D., Vienna. With regular correspondents in Montreal, London, Paris, Berlin, Vienna, Leipsic, Brussels, and Carlsbad. Volume IV. Nineteenth Series, 1909. Philadelphia and London. J. B. Lippincott Company. 1909.

**VITAL ECONOMY OR HOW TO CONSERVE YOUR STRENGTH.** By JOHN H. CLARKE, M.D. New York. A. Wessels. 1909.

**DISEASES OF THE HEART.** By JAMES MACKENZIE, M.D., M.R.C.P. Second edition. Oxford University Press, American Branch, 35 West thirty-second Street, New York. 1910.

**SPONDYLOTHERAPY.** Spinal Concussion and the Application of Other Methods to the Spine in the Treatment of Disease. By ALBERT ABRAMS, A.M., M.D. (University of Heidelberg), F.R.M.S. Consulting Physician to the Mount Zion and French Hospitals, San Francisco, formerly Professor of Pathology and Director of the Medical Clinic, Cooper Medical College (Department of Medicine, Leland Stanford Junior University) San Francisco. Illustrated. The Philopolis Press. Suite 406, Lincoln Building, San Francisco, California. 1910.

**OPHTHALMIC SURGERY.** A Treatise on Surgical Operations Pertaining to the Eye and Its Appendages, with Chapters on Para-Operative Technic and Management of Instruments. By CHARLES H. BEARD, M.D., Surgeon to the Illinois Charitable Eye and Ear Infirmary; Oculist to the Passavant Memorial Hospital, Chicago; Ex-President of the Chicago Ophthalmological Society; Member of the American Ophthalmological Society, etc. With 9 plates, showing 100 instruments and 300 other illustrations. Philadelphia, P. Blakiston's Son & Co., 1012 Walnut Street. 1910. Price \$5.00 net.

**MALE DISEASES IN GENERAL PRACTICE.** An Introduction to Andrology. By EDRED M. CORNER, M.A., M.C. (Cantab), B.Sc. (London), F.R.C.S. (Eng.) Surgeon to the Children's Hospital, Great Ormond Street; Surgeon to St. Thomas's Hospital, in charge of Out-Patients; Surgeon to the Isolation Wards; Teacher of Operative and Practical Surgery, St. Thomas's Hospital; Consulting Surgeon to the Wood Green and Purley Hospitals; Member of the Board of Advanced Medical Studies in the University of London. London. Henry Frowde, Hodder & Stoughton. Oxford University Press. Warwick Square, E. C. 1910. Price \$6.00.

**CONSTIPATION AND ALLIED INTESTINAL DISORDERS.** By ARTHUR F. HERTZ, M.A., M.D., Oxon., M.R.C.P. Assistant Physician in charge of the electrical department and demonstrator of Morbid Anatomy at Guy's Hospital; formerly Lecturer on Pharmacology at Oxford University and demonstrator of Pharmacology and Physiology at Guy's Hospital; formerly Radcliffe Travelling Fellow of Oxford University. London. Henry Frowde, Hodder & Stoughton. Oxford University Press. Warwick Square, E. C. 1909. Price \$4.00.

**DIET IN TUBERCULOSIS.** With Costs of Foods and Their Preparations. By NOEL DEAN BARDSWELL, M.D., M.R.C.P., and JOHN ELLIS CHAPMAN, M.R.C.S., L.R.C.P. Oxford University Press, American Branch, 35 West Thirty-second Street, New York. 1910. Price \$1.00.

**TEXT BOOK OF MEDICAL AND PHARMACEUTICAL CHEMISTRY.** By ELIAS H. BARTLEY, B.S., M.D., Ph.G. Professor of Chemistry, Toxicology, and Pediatrics in Long Island College Hospital; Late Dean and Professor of Organic Chemistry in the Brooklyn College of Pharmacy; Late Consulting Chemist to the Department of Health of the City of Brooklyn; Late President of the Board of Pharmacy of the County of Kings; Member of the American Pharmacy Association; of the American Chemistry Society; Fellow of the American Association for the Advancement of Science, etc. Seventh Revised edition. With ninety illustrations. Philadelphia. P. Blakiston's Son & Co., 1012 Walnut Street. 1909. Price \$3.00 net.

### BOOK REVIEWS.

**MODERN MATERIA MEDICA AND THERAPEUTICS.** By A. A. STEVENS, A.M., M.D., Professor of Therapeutics and Clinical Medicine, Women's Medical College of Pennsylvania; Lecturer on Physical Diagnosis in the University of Pennsylvania; Physician to the Episcopal Hospital and to St. Agnes's Hospital; Assistant Physician to the Philadelphia General Hospital; Fellow of the College of Physicians, of Philadelphia, etc. Fifth Edition, thoroughly revised in conformity with the Eighth Revision (1905) of the United States Pharmacopœia. Philadelphia and London. W. B. Saunders Company. 1909.

Five editions in as many years mark the popular demand of this book and indicate its good quality. The profession of medicine is very decided in its opinion of books. It has neither time nor room for anything, except the absolutely useful, in its own particular line.

First, then, this is a useful book. It has a voluminous and precise index, the indispensable key to a work of

this character. The reader can place his finger immediately on disease and remedy, making the book a *vade mecum* for the busy man. The modern additions to *materia medica* in the form of new drugs and antitoxins and vaccines are all well described here and so are most of the old and tried ones. But the ruthless twentieth century hand has swept aside some that have found and still find favor in the practitioners' eyes. This is a scientific work, well written, reliable, useful. We commend it to the attention of all, and especially to the therapeutic nihilist, who sneers at drugs; whose sole dependence is fresh air, mathematical diet and a minimum of attire, with an obsession as a key-stone to his whimsical arch.

**THE PRINCIPLES OF HYGIENE.** A Practical Manual for Students, Physicians, and Health Officers. By D. H. BERGEY, A.M., M.D., Assistant Professor of Bacteriology, University of Pennsylvania. Illustrated. Third Edition, thoroughly revised and enlarged. Philadelphia and London. W. B. Saunders Company. 1909. Price: Cloth, \$3.00.

The scope of the principles of hygiene is scarcely appreciated by one who has not read such a work as this. Its clearly defined knowledge, clearly expressed, makes it of great value to the physician, and also to the laity.

To the physician are presented the most recent discoveries and theories pertaining to the subject, and many concisely stated knowledges not always readily available. The clinical work of the practical physician finds important help in just such points of information.

By health officers it should be appreciated, giving as it does the quarantine laws of the United States and statistics of contagious diseases. Stimulated by board of health work and reports, the public has come to demand considerable enlightenment upon sanitary matters, and for many of the laity this would seem to be a suitable book.

Among the contents we find what are of especial interest just now, methods of water examination and purification for cities—Composition of foods and their adulteration—School hygiene and the medical inspection of schools, in which we are behind some of the countries of Europe.

One of the most interesting chapters is upon "The Vital Causes of Disease." Immunity and susceptibility are explained at some length, and a really readable exposition of Ehrlich's side chain theory is presented, and due reference is made to opsonius.

The chapter upon disinfection is particularly valuable. Those who look for equations, symbols, and square roots will not be disappointed.

The drawings are numerous, good, and an aid to the text. The book is satisfactory, and little can be said of it, except in the way of praise. GORDON R. HALL.

**ATLAS OF THE EXTERNAL DISEASES OF THE EYE,** including a brief treatise on the pathology and treatment. By Prof. Dr. O. HAAB of Zurich. Authorized translation from the German. Third edition, revised. Edited by G. E. de Schweinitz, A.M., M.D. With 101 colored lithographic illustrations on 46 plates. Philadelphia and London. W. B. Saunders Company. 1909. Price, cloth, \$3.00 net.

**ATLAS AND EPITOME OF OPHTHALMOSCOPY AND OPHTHALMOSCOPIC DIAGNOSIS.** By Prof. Dr. O. HAAB of Zurich. Second American edition from the Fifth revised and enlarged German edition. Edited by G. E. de Schweinitz, A.M., M.D. With 152 colored lithographic illustrations. Philadelphia and London. W. B. Saunders Company. 1909. Price, \$3.00 net.

It is with genuine satisfaction that we review the 2d revised, American edition of the "Atlas and Epitome of Ophthalmoscopy" and the 3d edition of the "Atlas and Epitome of External Diseases of the Eye."

Their inherent worth, the reputation, skill and experience of Prof. Haab, with that of its gifted Ameri-

can editor, Dr. de Schweinitz, stamp them as authoritative treatises.

There has been no very material enlargement of the ophthalmoscopic volume, but the text has been revised and certain additions are made. In the illustrated portion there are two new plates, one of retinitis carcinata, and one ataphyloma in myopia, and old illustrations have in some instances been replaced by new and better ones.

The text of the "Epitome of External Diseases of the Eye" is but slightly changed, some new material is, however, incorporated and modern ophthalmic innovation elucidated. Several new lithographic plates are added, among which are Pemphigus Chronic Tuberculosis of Chroid, and Siderosis. These plates are undoubtedly among our best ophthalmic lithographic publications, are excellently described in the text, and are most valuable as being the actual representation of cases treated at Prof. Haab's clinic in Zurich. While these volumes are primarily elementary, and excellently adapted for the student, they are invaluable to the general practitioner, as a concise epitome of the salient features of ophthalmoscopy and the external diseases of the eye. To the finished ophthalmist the perusal of Prof. Haab's text and plates is of refreshing and instructive interest, nor can they be regarded altogether as the expression of German ophthalmology, for in addition to the allusions of Prof. Haab, to American inventions, the annotations of Dr. de Schweinitz give ready and valuable reference. They are little classics in ophthalmological art.

**EXERCISE IN EDUCATION AND MEDICINE.** By R. TAIT MCKENZIE, B.A., M.D. With 346 illustrations. Philadelphia and London. W. B. Saunders Company. 1909. Price, cloth, \$3.50 net. Half morocco, \$5.00 net.

This book deals with two distinct but co-related sciences—Physical Education and Gymnastic Therapeutics. The author has so divided them, Part I treating of "Exercise in Education" and Part II with "Exercise in Medicine." The introductory chapters deal with certain general principles common to both, and contain many carefully arranged definitions which should do much to place these sciences on a firmer basis.

The chapter on Physiology of Exercise gives an excellent summary of the data collected by individual research workers, as well as the scientific observations of leading physiologists. Massage and Passive Motions are fully treated and well illustrated. The chapters on Systems of Gymnastics—German, Swedish, Japanese and Delsarte—are dealt with in broad and catholic ways, indicate a thorough knowledge of the principles of each, and the reader feels that the author is not bound to any "system" in his own teaching or practice. The chapter showing the Relation of Exercise to Age, Sex and Occupation is valuable both because of the dangers it warns against and the possibilities which are pointed out. Play Grounds and Municipal Gymnasiums, Physical Education in Schools, in Colleges and in Universities are of general interest, and the sections on these subjects contain special matter for those working in these fields. One wonders whether the discussion of Exercise for the Blind, the Deaf-mute and for the Mentally and Morally Defective, should not be properly included in Part II.

In the second part, an introductory chapter outlines the scope of Exercise in application to pathological conditions. A few chapters treat of those deformities in which unequal muscle development is an important factor. Flat foot, metatarsal weak-foot, round shoulders, lateral curvature of the spine and the secondary deformities of muscular paralysis, the developmental treatment of which is receiving increasing attention in monographs and text-books on Orthopedic Surgery, are here thoroughly and clearly discussed and much detail is paid to specific exercises in their treatment. Exercise for Diseases of the Circulatory System is given careful attention; and the reader is impressed with the

saneness of the chapter on Obesity. The text ends with an interesting chapter on the Exercise Treatment of Locomotor Ataxia. The older work of Weir Mitchell and the more recent studies of Frenkel and others are here given due notice.

This work should do much to stimulate the teacher of Physical Training to more scientific endeavor, and the second part should be of great value to the Practitioner and the Specialist in Medicine in familiarizing himself with the technique of this important therapeutic agent.

WALTER TRUSLOW.

**CHEMICAL AND MICROSCOPICAL DIAGNOSIS.** By FRANCIS CARTER WOOD, M.D. Second edition, with one hundred and ninety-two illustrations in the text and nine colored plates. New York and London. D. Appleton and Company. 1909. Price, \$5.00 cloth.

In the second edition of this well known and valuable book the author has eliminated certain of the older and less valuable tests and substituted newer ones. In the section on the blood very few changes have been made or were necessary, the most important addition being a description of the *Spirochæta pallida* with directions for its examination.

In the examination of the gastric contents, Sahli's desmoid reaction and Schmidt's nucleus test have been added. Under the urine, Folin's method for the quantitative determination of ammonia has been added and the older method of Schlosing omitted. Folin's method for the determination of creatinin is also given. The article on beta-oxybutyric acid has been re-written. Sections have also been added on Cammidge's reaction C., the newer tuberculin reactions, the opsonic index, the rapid diagnosis of rabies in smears, tropical splenomegaly and the Wassermann test for syphilis. The directions are clear and concise and but little debatable matter has been introduced. The illustrations and press-work are excellent and there is a good index. The book can be highly recommended in every respect.

A. M.

**THE BLOOD IN HEALTH AND DISEASE.** By R. J. M. BUCHANAN, M.D., F.R.C.P., Professor of Forensic Medicine in the University of Liverpool; Honorary Physician to Out-Patients, Liverpool Royal Infirmary. Formerly Honorary Physician, Stanley Hospital, Liverpool; Honorary Assistant Physician to the Hospital for Consumption and Diseases of the Chest, Liverpool. London, Henry Frowde, Hodder & Stoughton, Oxford University Press, Warwick Square, E. C. 1909. Price, \$4.50.

The first half of this book is taken up with the different methods of blood examination, while in the second half the diseases of the blood are treated of. It should be a particularly useful book for the medical student and practitioner, since it includes the symptoms and treatment of the different blood conditions. In describing the different hemoglobinometers, the Miescher modifications of the von Fleischel instrument is only mentioned, while a full description of the latter is given. It would seem that this order of things might have been reversed with advantage. The article on the coagulation time of the blood is particularly good but no simple instrument is shown which the practitioner could use at the bedside. A method is given for the estimation of the calcium salts in the blood and also the viscosity of the blood. The estimation of the opsonic index is also described. The directions for counting and staining are clear and concise. Special mention must be made of the beautiful colored plates, showing the various types of cells, normal and pathological. The individual cells are large and accurately colored and give one an excellent idea of the stained specimen. The chapters on the different diseases of the blood include the anemias, leukemias, blood disorders in infancy and childhood and the changes associated with special diseases. The printing and paper are excellent and the book can be highly recommended.

A. M.

**CLINICAL STUDIES FOR NURSES.** A text-book for second and third year pupil nurses and a hand-book for all who are engaged in caring for the sick. By CHARLOTTE A. AIKENS. Illustrated. Philadelphia and London. W. B. Saunders Company. 1909. Price, cloth, \$2.00 net.

A text-book for first year pupil nurses containing courses of study in anatomy, physiology, hygiene, bacteriology, therapeutics and materia medica, dietetics and invalid cookery, by Charlotte A. Aikens.

A concise, well balanced volume containing the essentials of the various subjects treated and therefore well adapted for use as a text-book. The illustrations are profuse and well executed, a few of which are in colors. Much is to be learned from a series of comparative tables taken from various authorities. At the end of each chapter are a number of blank pages for additional note-taking as well as a series of questions serving as a review in the various subjects. In conclusion this work may be considered satisfactory in every way for the purpose of preliminary study.

GEORGE MCNAUGHTON.

**COLLECTANÆE JACOBI.** Collected Essays, Addresses, Scientific Papers and Miscellaneous Writings of A. JACOBI, M.D., Professor of Infantile Pathology and Therapeutics, New York Medical College. In eight volumes. Edited by William J. Robinson, M.D. New York, 1909. Price, \$15 per set. New York, The Critic and Guide Co., 1909.

Dr. William J. Robinson has done a valuable service to the medical world in editing and publishing the collected works of Abram Jacobi.

The set of eight volumes will be welcomed by all who have an interest in the progress of medicine in the widest sense of that word, for Dr. Jacobi's influence has not been felt in one or two special departments only, but wherever the progress of medicine and the progress of civilization ran parallel, there also has his influence been marked; and this is so, because Dr. Jacobi is a humanitarian as well as a physician.

The first three volumes are devoted to Pediatrics, a subsection of medicine that he has done as much to advance as any one living. Of the great thoroughness of his investigations, of his complete mastery of the history of his subject, a perusal of these papers will convince any one; and with an excess of patience, truly teutonic, there are figures and statistics in profusion.

In the two volumes devoted to Therapeutics and Pathology we meet with many old friends, papers read some time ago in the journals, papers that were helpful and welcome on their first appearance and no less so now, on their re-publication. For Dr. Jacobi has ever stood up as a "Defender of the Faith," he has ever taken as his text when the subject had any relation to therapeutics, "Let not your good be evil spoken of." Against cavillers and critics and pessimists he has ever been ready with facts and arguments to prove that a large number of drugs have been useful in the past, a greater number useful in the present, and that we hope for a still greater number of useful drugs in the future.

Of the other volumes containing addresses and miscellaneous papers, whether the subject be convalescent hospitals or medical libraries or what not, they are all interesting and entertaining. No man knows better the foibles and weaknesses of the general practitioner than Dr. Jacobi, and no one knows better how to allude to them with a sarcastic touch that is never biting nor acrid, but rather gentle and loving.

Scattered through the volumes there is material of much value to the student of the history of medicine whether general history or local. Two papers especially may be mentioned, one on the History of Cerebrospinal Meningitis in America, the other a History of American Pediatrics before 1800.

Two indices, one general and one personal, add to the value of the volumes, and both editor and publisher are to be congratulated.

PETER SCOTT.

BIOGRAPHIC CLINICS. Vol. VI. Essays Concerning the Influence of Visual Function, pathologic and physiologic, Upon the Health of Patients. By GEORGE M. GOULD, M.D. Formerly Editor of *American Medicine*. Author of various Medical Dictionaries, "Borderland Studies," "The Meaning and the Method of Life," "Righthandedness," etc. Philadelphia. P. Blakiston's Son & Co. 1909. 429 p. Price \$1.00 net.

It would be impossible for the most persuasive writer to make thinking men in the medical profession take seriously these most extraordinary deductions of Dr. Gould in his latest—and, he says, his last—volume of "Biographic Clinics." But here we have the most radical ideas from highly exaggerated conditions presented in a style to antagonize rather than to persuade.

To the general reader this volume presents three very striking things: First, an ultra-radical idea of the influence of eye-strain upon the well-being of the human family; second, the intolerance of the writer for the opinion of others who are working in his special field of medicine; third, the egotism of the writer.

The ophthalmologist recalls as he reads these wonderful biographies, a few phenomenal cases and cures, which every practicing oculist of experience can produce, which the author makes the type and tries to prove that nearly all the ills of civilized men are due to eye-strain, chiefly from errors of refraction. Judged by his own standard, the author has unmistakable symptoms of eye-strain clearly shown in his writing.

The writer unquestionably has valid reasons for making strong appeals and emphasizing the importance of the relation of the visual function to health and disease; but it seems unfortunate that he should have presented it in this spirit. However, this book can be read by every ophthalmologist with profit and from it he should receive inspiration to work out the refraction of his patients with much care and perseverance. It must, in candor, be admitted that it is often difficult for the oculist to give the necessary time to this most important part of the work, and frequently patients cannot take the time which prolonged examinations and cycloplegic tests necessitate.

The writer of this criticism believes that such publications and preachings from monomaniac enthusiasts have been partly responsible for the lack of appreciation, by the practitioner of general medicine, of the work of the ophthalmologist, and have in a large measure prevented a salutary co-operation.

WILLIAM SIMMONS.

CLINICAL EXAMINATION OF THE URINE AND URINARY DIAGNOSIS. By J. BERGEN OGDEN, M.D. Medical Chemist to the Metropolitan Life Insurance Company, New York. Third Edition, revised. Octavo of 427 pages, Illustrated. Philadelphia and London. W. B. Saunders Company. 1909. Cloth, \$3.00 net.

This is an octavo of 427 pages by a well-known and acceptable writer. From the mechanical viewpoint, it measures fully up to the standard of the Wm. B. Saunders Co.'s excellent work, the typography being beautiful, and the plates for the most part accurate and clear. The author's style is particularly lucid, and has the quality of brevity, which in these times of much writing is a great desideratum. The subject-matter is treated consecutively and logically; and the author has wisely avoided too much technicality. He confines himself to those facts which are for the most part of practical value to the practising physician. His chemistry is stronger than his morphology. Every page of Dr. Ogden's book bears evidence of painstaking work and wise discrimination in moiting moot points, and adhering to the plan of making it useful for everyday reference and work.

We would heartily recommend this book as sure to prove both interesting and helpful to him who buys it.

## In Memoriam.

HAMILTON DOX WEY.

By HENRY L. ELSNER, M.D.

SYRACUSE, N. Y.

FOR over half a century the name of Wey has been a household word throughout the southern tier of counties of New York State. During the same period this name has been inseparably connected with the history and progress of medicine in this State. There are no medical reforms within the memory of our older and younger membership which do not include reference to either that splendid gentleman and true doctor of the old school, William C. Wey, or to his son, Hamilton Dox Wey, whose untimely death we now mourn. The former, a most lovable character, served the Society as its president, was instrumental in giving the profession its present Board of State Medical Examiners, and became its first presiding officer, an office which he filled with honor to the profession and credit to himself until the day of his death.

A worthy successor to his father was Hamilton Dox Wey, whose sudden death at Callao, Peru, on March 17, 1909, shocked the profession. He was honored by the Medical Society of the State of New York by election to its presidency in 1904. He enjoyed the unique distinction of being the only son to succeed his parent in that office.

Dr. Hamilton Dox Wey was born in Wilkes-Barre, Pennsylvania, on the 29th day of July, 1854. He received his early education at the public schools and academy in Elmira, to which city his father moved after Hamilton's birth. Dr. Wey attended the St. Paul School at Concord, New Hampshire; finally found his way into the medical profession after graduating from the College of Physicians and Surgeons of New York City. He associated himself with his father in Elmira, where he continued in active practice until his death. His splendid qualities, strong character, and devotion to his profession soon brought him a large clientele and it was not many years after beginning practice that he was counted among the leading consultants of southern New York.

Dr. Wey was intensely interested in matters of sanitation. He proved himself as health officer of the city of Elmira during nine years competent to cope with the most complicated problems dealing with hygiene and public health. The citizens of Elmira will continue to remember him as having conferred lasting benefits upon them, because of the energetic and scientific administration of the office which he graced. Early in his professional career he learned to appreciate the great value of laboratory aids in diagnosis and during his service as health officer established an efficient laboratory which as time progressed has proved itself of inestimable value to the pro-

fession and has resulted in the saving of innumerable lives because of the assistance which it gave for the more thorough understanding and diagnosis of infectious disease. He administered the department which had been placed under his care with great faithfulness, wisdom and honesty. He took a practical and liberal view of all questions which were presented to him. His opinions were fearlessly given though not until he had weighed all evidence and considered thoroughly and impartially the question at issue. He was largely instrumental in rebuilding the Detention Hospital in the city of Elmira and took an active interest in preparing a sanitary code for his home city. For over twenty years he was the medical officer of the New York State Reformatory at Elmira, and instituted the splendid system of physical culture now used in that model institution. He was particularly interested in the study of criminology, upon which subject he became an authority. His opinions were frequently sought by the profession of this and other states. During the years of his association with the New York State Reformatory he gave much of his time without material reward to the institution and proved to be a strong moral factor, which strengthened the institution, while he endeared himself to the board of managers and to the inmates.

Dr. Wey during his term as president of the Medical Society of the State of New York proved his great adaptability to conditions as they arose and worked with unceasing energy to strengthen the profession, aiding the Joint Committee of Conference appointed by the then existing State bodies to reunite the profession in the reorganized Medical Society of the State of New York. He had a judicial mind, was always earnest and honest, was tactful, with a strong individuality, qualities which made him a valuable adviser.

After the completion of the Arnot-Ogden Memorial Hospital in Elmira, Dr. Wey was intimately associated with the management of that institution. During eight years he served on the staff as attending physician, twelve years as consulting physician, for ten years he was the head of the Board of Managers and seven years its vice-president. His devotion and fidelity to this institution made him one of its most useful friends.

As a practitioner he was thoroughly painstaking, never reaching a conclusion without giving all factors due consideration. Because of his ability to reason systematically and a thorough knowledge of the fundamentals of medicine he became an exact diagnostician. He was not a polypharmacist; his treatment was as simple as it could be made. Whenever justified he took advantage of natural and rational methods of treatment to the exclusion of drugs. As an expert witness in medical and surgical cases he remained non-partisan, giving to the court and

jury his conclusions in plain and convincing English, without fear, regardless of results.

Dr. Wey was naturally quiet and reserved. He was a man of few words. He has a generous and sympathetic heart which endeared him to his friends; the attachments which he formed were lasting. As a writer he was graceful, easy, explaining himself clearly and elegantly. His published monographs, particularly those dealing with physical treatment, criminology and public health, were received by the profession with great satisfaction and are recognized as being authoritative on the subjects with which they deal.

Dr. Wey, like his father, was a man of considerable personal dignity, a fact which was most noticeable when he engaged in debate or argument.

It became evident to his friends after an attack of grip, from which he suffered five years before his death, that he was stricken with organic disease which was gradually undermining his physical strength, making it more and more impossible for him to attend to the increasing demands of a constantly growing practice. Himself recognizing the gravity of his condition he nevertheless continued at his work with clear mind and a heart filled with charity until overtaken by sheer exhaustion he was forced to give up and sought relief in travel and change of climate. Shortly after the last annual meeting of the Medical Society of the State of New York which he attended, he sailed for Southern waters; Had visited the West Indies, crossed the Isthmus of Panama and reached Callao, intending to sail around the Horn for home when a sudden and unexpected collapse ended this valuable life. His devoted wife was with Dr. Wey at the time of his death. Dr. Wey left no children; his only son, William S. Wey, having died six years ago. Dr. Wey's body was returned to his home city and he was buried there on the 16th of April. The citizens of Elmira and of the surrounding country whom he had served so well, who had loved him because of his rugged honesty, sympathy and great usefulness, were bowed in sorrow by his untimely death. The medical profession of this State will long cherish the pleasant memories which cluster about the name of Hamilton Dox Wey.

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## DEATHS.

WILLIAM BALSER, M.D., Richmond Hill, died January 24, 1910.

J. L. COOPER, M.D., Albany, died December 12, 1909.

RAMON L. MIRANDA, M.D., New York City, died January 27, 1910.

JOHN P. WILSON, M.D., Poughkeepsie, died January 17, 1910.



# NEW YORK STATE JOURNAL OF MEDICINE

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## EDITORIAL DEPARTMENT

### THE CONSERVATIVE POWER OF DISEASE.

WE are apt to think of disease as an unmitigated evil. It brings suffering on the individual, sorrow into his environment and adds to the expenses and difficulties of society. Tuberculosis robs us of some of our brightest intellects, shadows the homes of the poor, and is an enormous expense to the state. Scarlet fever, measles, whooping cough all take their toll of our children, whose mothers weep in vain for the lost. There is no task to which society, led by the medical profession, is more vigorously bending its energies than to the extinction of tuberculosis and the epidemic diseases. But the sanitarian who is both a statesman and a student of Darwin's doctrine of the survival of the fittest, knows that something more than sanitation is needed if the discoveries of preventive medicine are to prove of real benefit to the race. There is such a thing as being kind to the individual but cruel to the race. Nature's way is the reverse. She is careful of the race but careless of the individual. Her pruning is rough but effectual. Every ice storm that clothes the leafless trees of winter in an icy shroud is a veritable pruning knife to search out weak and rotten limbs. It is the strong sapling, the sturdy limbs that survive. The rotten and the weak strew the snow covered ground and warm the chilly limbs of the poor when gathered to their firesides. So deals Mother Nature with the race. What individuals does she mark as victims for the White Death? Men, women and children with puny frames, small and weak hearts, small arteries. No matter how great the intellect, the scythe of the reaper swings for a Heine or a Schopenhauer, a Chopin as readily as for the child of the street sweeper. The survival of the fittest is a natural

law which we cannot abrogate artificially without paying the price in the future. If tuberculosis were extinguished as a disease tomorrow, if we went no further in the direction of race culture, what would be the inevitable result? Should we not develop in our midst a race of narrow chested weaklings of poor digestion, faulty circulatory apparatus, insufficient for the battle of life in all their bodily functions?

Tuberculosis has been a weeder out of the unfit. So have the zymotic diseases. Nature means only the strong children to survive, to perpetuate the race. Like Sparta of old, she sacrifices the weak for the ultimate good of the race.

Shall we then cease our crusade against tuberculosis? Shall we abrogate our Boards of Health and suffer the rough pruning of nature to hew and fell where it can find a victim? No, but we must recognize the fact that if we interfere with a natural law we must accomplish its purpose in some other way. The state must first concern itself with the bodies of its young citizens and after that with their minds. We are just learning the lesson that backward children are usually sick children. Some day we shall go further and realize that the young criminal and the habitual criminal are not wholly wicked but wholly infirm; that many of them need a hospital more than a prison; that if their parents had received hospital care their children would not be tenants of a prison cell. If we are going to protect the puny, the weak and unfit from the stern hand of nature and nature's law, we must take up nature's work. We must develop the weak chest, the puny limbs, put the children of the poor in sanitary surroundings, give them a chance to develop in a better place than an alley or a garret.

Society cannot sin against little children as is done day by day in northern mine and

southern mill without paying the price. If it does not pay the price of death to-day, to-morrow it will mean the birth of a feeble race not worth perpetuating. Look to the future as well as the present. Let us understand that the survival of the fittest is a law which no race can abrogate by science or philanthropy, without deteriorating. Let us exterminate tuberculosis and the zymotic diseases, but also develop the unfit into the fit, by training, by environment, by philanthropy. Otherwise the price which the future must pay for immunity from these diseases which are, after all, the conservative forces which have kept the race strong and vigorous, will stagger credulity.

If preventive medicine is successful in putting an end to nature's policy of conservation through the extinction of the unfit, unless a broad statesmanship, an enlightened christianity, a pervading and masterful sense of justice intervene to take up the work of nature and render the sacrifice unnecessary, we shall perish as a race from off the face of the earth, slain by our own iniquities and folly.

A. T. B.

### CASTLES IN SPAIN.

**W**E are all dreamers of dreams and seers of visions at some time. Youth is usually the period when the airy phantasms of the night most allure us. Arrived at mature age as we look back at those early days, those floating iridescent films still gleam all roseate in our memory. They were harmless delusions and hurt no one. They burst and left nothing behind but a wreath of misty vapor. The dreams of middle life, however, are more serious. Building castles in Spain is an enchanting amusement—at first, but when they come tumbling about heads that are beginning to grow gray, real disaster often follows. The medical profession is particularly prone to this diversion. There are few of us who have not once taken what is commonly called a flier in the street and come a cropper in consequence. All sorts of enterprises appeal to the professional man for support. Tin mines in New Hampshire and marble quarries in Long Island; copper mines on Pike's Peak and fruit ranches in the Great American Desert; gold mines at the North Pole! Is there a member of our profession who has not been circularized by many such enterprises? The writer not very long ago received a touching appeal to invest ten dollars in a syndicate which would bring back a profit of two hundred and fifty. A little later a generous firm desired to present him with lots in "one of the best residential sections of New York, absolutely free." There was another circular about a gold mine on the other side of the Arctic circle, full of instructive letters from mining engineers. For the purpose of securing your valuable support, a limited

number of shares of stock are yours, at two dollars and fifty cents a share. This stock has never, never sold at less than five dollars. The lean and hungry doctor, nose to the grindstone, year in and year out, Sundays, holidays, day and night is already rich beyond the dreams of avarice as he reads. Oh, the benevolence which is to be found in Wall Street and the love for the medical profession! "Our only desire is to benefit you, sirs. It is a favor we are doing you. We do not buy this wonderful stock ourselves, because we desire to hand out some of the good things to the members of a deserving profession." Such philanthropy in this wicked world! Who would have thought it, and of Wall Street too!

Those castles in Spain, how enchanting they looked on the distant horizon! Especially when seen through the long distance glasses of the obliging promoter, "double million hextra magnifying power." And then we plunged. We drew the money out of the savings bank and received in return really exquisite examples of the engraver's art. Dr. Jones has stock of the Dutch Baby gold mine, situated in north latitude 85; and Dr. Smith is the proud possessor of stock in the Consolidated Marble Quarries of Long Island, and Dr. Robinson and wife gaze lovingly at the bonds of the Consolidated Banana Plantations, limited, of Patagonia. It is a singular fact that all these desirable and profitable investments are always so far away. They are never in the next county. How many of you own stock in these charitable institutions for relieving medical men of their money painlessly? There is many a face, wreathed, we fear, with wry and uncertain smile hardly akin to laughter, as the doctor reads these lines. Those castles in Spain, where are they? Gone to join the mirage of the desert.

There is no man who earns his money harder than the doctor. The rewards of professional life are not great. It seems impossible to lay by a competence for old age, and the temptation to speculate in order to turn small savings into great is often overpowering. But we simply lose the little we have. Brokers do not stand on the corner of Wall and Broadway to sell doctors five dollar gold pieces for twenty-five cents—not yet. The doctor who puts his money in a mine puts it in a hole and his family too. Not very long ago a doubtful enterprise, one of the wildcats, was languishing in New York for want of funds. Said the promoter to the company—president, secretary, treasurer, principally treasurer—"Let's circularize the doctors and the dentists," which was done. Result: The doctors and dentists were shortly fifty thousand dollars poorer. The professional men had some nice steel engravings and the syndicate the cash.

Doctors would do well to remember that five or six per cent. in the hand is worth ten per cent. in the bush, and that altruism is unknown in Wall Street.

A. T. B.

## Original Articles

### WHEN TO OPERATE IN APPENDICITIS.\*

By JOSEPH A. BLAKE, M.D.,  
NEW YORK.

WITH very few exceptions, it is impossible to determine at the commencement of an attack of appendicitis whether the process is to be a mild endoappendicitis or a severe suppurative process, involving the entire organ. Therefore, for the safety of the patient it is wiser to consider all as possibly of the severer type.

Excluding the cases observed in the interval, that is, between the attacks, in which the question of when to operate narrows itself down to the relative danger of an interval operation, or of a subsequent attack with a probable operation, we are consequently confined to the consideration of the proper time to operate in cases in which there is suppuration or in which it is likely to occur.

In considering the indication for operation in these cases it is convenient to separate them into groups depending upon the time which has elapsed between the commencement of the attack and the moment of observation. I have, therefore, grouped them into those observed in the first twelve hours, in the second twelve hours, in the second twenty-four hours, and those observed from forty-eight hours on.

*First Twelve Hours.*—In this period it is difficult or even impossible to tell the exact condition of the appendix. There may be endoappendicitis that will subside; a suppurative process that will either perforate slowly and form a local suppurative peritonitis, or escape through the lumen of the appendix into the cæcum and resolve; or there may be a rapid distension of the appendix with pus that can only end in gangrene, rupture and diffuse peritonitis. However, in nearly all instances the process at this early period will be confined to the appendix, and it can be removed as safely as if the operation were undertaken in the interval. This may seem a bold statement, but I am convinced it is true, with possibly one exception, and that applies to the rare cases in which an infectious phlebitis has already started. But this is an exception that proves the rule, for those are the very cases which should be operated upon at the earliest possible moment.

The main reason that an early operation during an attack is so safe lies in the fact that the infection has already induced the formation of protective bodies. These will effectively care for any contamination of the wound by bacteria from the surface of the appendix, and the wound can

be closed with as much assurance of primary healing as if the operation were done in the interval. In fact, drains should not be used, for, by pressure, they produce necrosis and invite suppuration about them.

No one can gainsay the advisability of immediately operating upon perforations of the appendix in the first twelve hours of an attack. Therefore, taking into account the uncertainty of the outcome of an attack of appendicitis at its commencement and the very slight risk of an operation, we cannot be far wrong in accepting the dictum that the appendix should be removed as soon as the diagnosis is certain enough to warrant an operation. The risk is surely less than waiting, for in the next twelve to twenty-four hours necrosis, if it is to occur, becomes established and infection extends to the surrounding tissues.

*Second Twelve Hours.*—In most cases the same conditions prevail during the second twelve hours as have just been outlined for the first twelve hours of the disease. However, in some cases necrosis will have taken place and infection of the peritoneum will have commenced. When this occurs rigidity becomes manifest. The pathologic process, however, is still confined in the great majority of cases to the immediate vicinity of the appendix, and operation should be immediately performed before infection of the peritoneum becomes established. At this stage it is bad judgment to wait for localization and the further elaboration of protective bodies, for the infection is emanating from the appendix itself, and its removal is followed by immediate resolution of the accompanying peritonitis.

In the second twelve hours, or later in some cases, there is very apt to be a lull in the symptoms, particularly if vomiting and pain have been pre-eminent. This lull is often mistaken for an improvement, while it actually indicates that the distended appendix has become necrotic or perforated. The early general or epigastric pain and vomiting of an appendical attack are the reflex contractions of the intestines and stomach, and are in reality a reflex ileus caused by over-distension of the appendix. When severe, they have been for a long time, to my mind, one of the most imperative indications for immediate operation, on account of their signaling the danger of an early rupture.

In our worst surgical risks, namely, the obese, middle-aged high liver, these early symptoms are of the greatest value, because the fat alcoholic peritoneums of these individuals are markedly anesthetic, and the process in and about the appendix gives rise to slight and inconspicuous local signs. These bad operative risks also do not withstand infection, and an early operation to remove the appendix before infection has spread is by far their best chance. The temptation is to wait for the interval, but they are seldom able

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to localize the infection. If the peritonitis becomes generalized there is as little hope one way as the other, with or without operation, and consequently, interference, to be successful, must be early.

*Second Twenty-four Hours.*—In this period, in the severer cases, necrosis of the appendix and infection of the peritoneum is usually well established. Ileus and meteorism commence, and the patient begins to show the effects of a serious infection. Still, there can be little difference of opinion as to the propriety of operation, for in the great majority of cases the removal of the appendix is followed by an immediate cessation of extension of the peritonitis and resolution.

In the milder cases in which the process seems to have reached a standstill, or to even be subsiding, the general impression seems to be that it is better to postpone operation until the interval. That this is not the correct view to take in all cases is proven by the frequent recrudescence of inflammation and the necessity of operation under less favorable conditions. Consequently, it will be found to be safer to make it the rule to operate in the second twenty-four hours of an attack even if the process seems to be at a standstill or retrogressing.

*After Forty-eight Hours.*—The greatest diversity of opinion as to the proper time to operate exists in the period comprised in the third, fourth and fifth days of the disease. It is generally considered to be the most dangerous period for operation, for the mortality following operation is greater than when done in the preceding days, and many have the impression that it is also greater than when done at a later period. There has been, therefore, a disposition on the part of many to tide the patients over until localization, i. e.: abscess formation has taken place. That this is the correct view to take I am by no means convinced, notwithstanding the very favorable reports of those who have methodically employed the Ochsner or waiting treatment. There is no doubt but that the tendency of all suppurative processes in the peritoneum is to become localized and that under proper treatment, namely, fasting and peristaltic quietude, in many cases processes that would otherwise go on to a generalization do become localized. But, on the other hand, I do not think that it is proper or correct to assert that the Ochsner treatment stops extension and produces localization in all cases.

Another question arises, and that is: What is gained by localization? If a diffuse peritonitis is of moderate extent, removal of the appendix is almost sure to be followed by rapid resolution; and why should we wait for the formation of an abscess and take the risk of further extension? If, on the other hand, we first see the patient with an extensive, diffuse, say a generalized peritonitis, can we expect it to localize

to a moderate-sized abscess? This is most improbable. What I have repeatedly observed in this class of cases, if they have lived long enough to reach a stage of abscess formation, is the formation of multiple abscesses, separated by adhesions and lying in the various fossæ formed by the contour of the abdominal cavity, or by the reflexion of the peritoneum, and in my experience they have been the most fatal class I have encountered.

The fact is, we cannot know what is present in the abdomen if we do not open it; and I have a strong impression that the cases treated expectantly that go on to the formation of moderate-sized abscesses and sepsis might have been saved by early operations. In other words, I think that it is too often assumed that the process is more extensive than it really is, and that thereby an impression has arisen that extensive infections of the peritoneum under proper treatment become contracted to narrow limits.

I have employed the Ochsner treatment carefully in several advanced cases that seemed to me to be poor operative risks, and while some of the symptoms have abated, there has always been a continuance or an increase in the septic manifestations, and I have been constrained to operate under more unfavorable conditions.

It has also seemed to me that the poor risks, that is, the patients whom we expect to stand operations badly, also will not withstand or localize infection, and that they do badly no matter whether we operate or wait.

The mortality of late abscess operations is very high. The patients may not die immediately after the operation, but complications such as sepsis, secondary abscesses, obstruction, are common, and carry them off at a later date.

## APPENDICITIS IN CHILDREN.\*

By CHARLES N. DOWD, M.D.  
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CHILDREN'S surgery differs from adult surgery in many particulars.

In the osseous system its peculiarities are so marked that children's hospitals and orthopaedic hospitals are almost synonymous terms in many cities.

In the lymphatic system there are similar peculiarities, for children's lymph nodes show both suppurative and tuberculous inflammations more frequently than adults'; and the type of inflammation, too, differs with different stages of childhood, the suppurative forms being more common before the age of two years, and the tubercular forms increasing in relative frequency after that age.

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The thoracic inflammations of children differ widely from those of adults.

Tubercular serous effusions are rarer. Purulent pneumococcus and streptococcus effusions are more common.

The abdomen shows peculiarities in its inflammations as marked as any of those already mentioned.

Biliary and gastric inflammations are rare. Tubercular peritonitis is more common than in adults, but the ascitic form is seldom seen.

General suppurative peritonitis from unknown cause is much more common in children, also pneumococcus peritonitis, and probably general gonococcus peritonitis.

Since children present so many surgical peculiarities, one would expect their attacks of appendicitis to show noteworthy features; and they do.

The subject of appendicitis has been so exhaustively and thoroughly treated by so many able authors that a treatise of the entire subject should not be attempted here. The purpose of the paper is to consider two questions:

1. When should operation be done in children?
2. Is there any principle of operation which is important? Or when to operate? How to operate?

The first of these questions depends primarily on the diagnosis. Even those surgeons who have advocated delay in certain adult cases (Ochsner, McCosh) advise immediate operation in similar children's cases, fearing the insidious spreading form of peritonitis which they occasionally have.

The diagnosis in children is complicated by many factors. It is usually difficult or impossible to obtain a clear statement of symptoms or an accurate localization of pain, and symptoms which guide us in adults are in children frequently due to other causes than appendicitis. Hence, we hear of multiple consultations, of delays and indecision, and of progression to general peritonitis, or multiple abscesses, in the kind of cases which are promptly and successfully treated in adults.

The usual symptoms of acute appendicitis have been very graphically described by Murphy.<sup>1</sup> He gives a sequence of four symptoms:

1. Pain in the abdomen, sudden and severe.
2. Nausea or vomiting, coming usually three or four hours after the onset of the pain.
3. Abdominal sensitiveness, most marked in the appendical region.
4. Moderate elevation of temperature, beginning two to twenty-four hours after the onset of the pain.

In children the first, second and fourth of these symptoms are particularly difficult to interpret. They frequently have so-called "stomach aches" without untoward results. Vomiting is common, and moderate elevations of temperature come from numerous causes, often unexplained.

We must for them depend mostly on the third symptom: sensitiveness, which becomes localized in the appendical region. Muscle rigidity is the main evidence of its presence.

Children give localized rigidity as well as adults do, and its existence must be our main guide in making the diagnosis. The other symptoms are usually also present, and they come in the sequence given by Murphy; but for children they are to be considered as indications to look for the rigidity, as guides in interpreting rather than as independent diagnostic features. When abscess formation has occurred, of course tumefaction is added to the local tenderness.

Since children's abdomens are small, their appendices often relatively long, sensitiveness at a distance from McBurney's point is more common than in adults. Abscess formation in the hypochondriac or umbilical regions, or even to the left of the median line, or deep in the pelvis, occasionally occur, and the muscle rigidity and tenderness will correspond to the position of the appendix, or the inflammation which spreads from it. When this is below the umbilicus or in the pelvis, it is particularly misleading; in the former the rigidity may seem general and not local, and in the latter inflamed tissues are protected by the bony pelvic wall, and hence give very little muscle rigidity. Vesical irritability is also a very common symptom when the appendix is situated near the bladder. Many authors refer to it as a particularly frequent and significant symptom.

There are several conditions which may easily be mistaken for appendicitis. Among them we must first mention *beginning pneumonia*. When this occurs on the right side it is accompanied by pain, fever and right iliac muscle rigidity. Several times such patients have been sent to the hospital for operation. The rapid respiration, the fascies and general appearance which accompany pulmonary inflammation, and the absence of vomiting, usually lead one to watch such patients until the physical signs of pneumonia develop.

*General peritonitis* from unknown cause is more often seen in children than in adults. It is one of the most insidious and overwhelming of diseases. Holt and Kerley have described it in careful detail.

The writer read a paper on the subject before the New York Surgical Society in 1908 describing cases. It is much more virulent in its progress than is ordinary appendicitis, and shows little or no tendency to localized muscle rigidity. It is not easy to distinguish it from appendicitis, and but for its rarity it would lead to many errors in diagnosis.

Probably the infection in some of the cases reaches the peritoneal cavity through the wall of the appendix, the least resistant part of the intestinal canal, but with our present knowledge the cases surely should not be classed as appendi-

<sup>1</sup> *Amer. Jour. Med. Sc.*, vol. CXXVIII, p. 190.

citis, since the appendix shows no more inflammation than the rest of the alimentary canal.

*Tubercular peritonitis*, too, is often localized about the cæcum and gives symptoms of appendicitis.

We do not know how common *pneumococcus peritonitis* is, because many cases subside spontaneously. There have been several cases observed at St. Mary's Hospital, and they were not easily distinguished from appendicitis. There was at least one instance of *diffuse gonococcus peritonitis*.

*Foreign bodies* are more common in children than in adults. We have seen three cases of pins in the appendix, and one of a lunbricoid worm free in the peritoneal cavity.

Many authors have referred to the difficulty of distinguishing appendicitis in children from hip disease. The writer has seen one case of acute suppurative coxitis in whom the diagnosis could not be made before operation. An incision was so made that the dissection could be carried either toward the hip joint or toward the appendix, according to the indications.

Cyclic<sup>2</sup> vomiting, that peculiar form of recurrent vomiting in children which is believed to correspond to attacks of migraine in adults, may give symptoms very similar to appendicitis. The differentiation rests largely on the absence of signs of local inflammation. It is interesting to note that Comby<sup>3</sup> believes that cyclic vomiting is generally due to chronic appendicitis, and that he has removed the appendix in a large number of cases and that cures followed in many of them.

With all these possibilities in view we see that the diagnosis in children is much more difficult than in adults, but it is not so complicated as this long list of difficulties would indicate.

It can generally be made by due consideration of the muscle rigidity and tumefaction and the symptoms which precede and accompany it, according to Murphy's schedule.

#### CONSIDERATION OF CASE GROUPS AND TIME AND METHOD OF OPERATION.

In aiming to obtain satisfactory results in the treatment of appendicitis we may well say that we are *in the hands of our friends*.

One cannot obtain good results if patients are frequently sent to him in the last stages of general peritonitis.

There has been great improvement in this respect within a few years.

In 1897 Karewski collected the reports of various surgeons concerning appendicitis in children under 5 years of age as follows:

Rotter lost 66 2-3 per cent. of 6 cases.

Israel lost 47 per cent. of 15 cases.

Broca lost 44 per cent. of 59 cases.

Karewski lost 41 per cent. of 17 cases.

Lewander lost 25 per cent. of 4 cases.

Sonnenburg lost 15 per cent. of 26 cases.

A very sad showing, which does not reflect so much on the surgeons as upon the conditions which provided him with unfavorable cases.

In 1909, however, Alsberg<sup>4</sup> reports 16 cases in childhood without fatality.

A somewhat similar report with a larger series of cases is made from the Children's Hospital in Philadelphia.

The ordinary reports have shown similar improvement.

The writer's cases indicate the general improvement in the early referring of cases. In 1905 he reported 70 cases of appendicitis occurring between the ages of 2 and 15 years. Between that time and September, 1907, 50 additional cases were operated upon by himself or other members of the staff of St. Mary's Hospital for Children.

Since September, 1907, 61 have been added to the list. In the last two groups two of the cases were under two years of age. A study of these three groups shows a great improvement in early diagnosis, even in children:

TABLE SHOWING TIME OF OPERATION AND MORTALITY RATE.

Number of Cases	Operation within 48 hours of onset of symptoms	Later action Cases	Interval Cases	Mortality
	%	%	%	%
1st Group, 70....	15.7	57.1	27	10
2d Group, 50....	16	74	10	8
3d Group, 61....	36.1	49.2	14.7	0

The results correspond to this improvement in diagnosis, for in the later cases there was no mortality. In the three groups there were 41 cases operated upon within 48 hours of the onset of symptoms, with only one death. There is another important element in determining the success of treatment; it is simplicity of operation.

In the article already referred to Murphy makes this statement: "A man who is having more than three or four deaths in a hundred operations for appendicitis is either receiving his patronage from incompetent and procrastinating medical men, or is doing too much manipulating in the peritoneal cavity under unfavorable pathological conditions."<sup>5</sup>

In another article he has recorded: "Fifty-one cases of perforative peritonitis with only two deaths."

The general trend of recent surgical procedure has been in accord with these principles, and those of us who have been interested in these

<sup>2</sup> Griffith, *Am. Jour. Med. Sc.*, CXX, p. 553.

Holt, "Diseases of Infancy and Childhood," p. 326.

<sup>3</sup> Jules Comby, *Archiv. f. Kinderheilkunde*, vol. L, 1909, p. 33.

<sup>4</sup> *Archiv. f. Kinderheilkunde*, Stuttgart, 1909. Vol. 50, p. 252.

<sup>5</sup> *Annals Surg.*, XLVII, p. 871.

## MASKED APPENDICITIS.\*

By GEORGE EMERSON BREWER, M.D.  
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cases have simplified our technique accordingly, making our incisions well to the side, removing the appendix when practicable and draining the local abscess if there was one, but neglecting the general peritoneal cavity and not manipulating or disturbing the intestines therein. If the appendix could not easily be separated it was left undisturbed.

The complications from this method of treatment have been surprisingly few. An occasional secondary operation has been needed for the removal of an appendix.

The secondary abscesses in other parts of the abdomen have not been as frequent as when more manipulating was done there.

One cannot at all expect a series of cases to continue long without mortality. Children who have the insidious, rapidly spreading form of peritonitis are too common for that, but a combination of early diagnosis and simple operation will give results more satisfactory than we have been accustomed to without these aids.

The period of childhood is believed to have a marked bearing on the prognosis, the younger children being less favorable than the older. Statistics bear out this belief, e. g.: Kermisson (*Revue de chia. Par.*, 1906, XXXIV, 441) collected records of 25 cases under two years of age, of whom 19 died.

This difficulty, however, applies rather to the diagnosis than to the treatment, since young children endure simple operations very well.

The age distribution of the cases is as follows:

AGE.

	Under 5 years	Between 5 and 10 years	Between 10 and 15 years
	%	%	%
Group I.....	5.7	41.4	54.8
Group II.....	6	38	56
Group III.....	11.4	32.8	55.7

Thus indicating among the physicians an increased frequency of diagnosis in very young children.

Among the 14 children under 5 years of age there happened to be no mortality, but there were more complications than among the older children. For example: One infant of 21 months was seen during the first two weeks of his illness by no less than seven physicians and surgeon before a diagnosis was clearly made. Then a small abscess which contained an appendical concretion was found near the median line. Fecal fistula, pneumonia, empyema and various digestive disturbances complicated his very stormy recovery.

The course of this case and the other cases in this group indicated difficulty in diagnosis; but also, on the part of the children, ability to endure slight operations and protracted inflammations.

IN connection with the other papers presented this morning on the subject of appendicitis, I desire to call the attention of the Society to certain types of cases which may be grouped under the head of masked appendicitis.

A quarter of a century ago, when attention was first directed to infections of the vermiform appendix and their relationship to the localized and spreading forms of peritonitis, physicians were accustomed to classify the early pain, nausea and vomiting of appendicitis, as acute indigestion, gastralgia, enteralgia, bilious attack or intestinal colic, terms heard much less frequently to-day when the etiology of such symptoms is more generally appreciated.

In this early period therefore the mistakes in diagnosis were those in which the medical men ascribed the symptoms caused by an inflamed appendix to other pathological conditions real or imaginary, and as a result the true nature of the process often was not revealed except by late operation or autopsy.

The great frequency of appendicular inflammations, the enormous amount of attention which has been given to this subject and the almost infinite number of accurate observations which have been made during the past twenty years in operations in all stages of the disease, have gradually resulted in a very thorough dissemination of precise knowledge regarding its behavior, and the various clinical pictures which it presents. As a result it may be said at the present time that the majority of mistakes made by trained practitioners and surgeons are in mistaking for appendicitis lesions of other organs, as infections of the gall-bladder or pancreas, perforative lesions of the stomach and duodenum, intestinal obstruction, renal disease, diverticulitis, etc. These mistakes are not infrequently revealed by operation, and in general are less serious than those where an appendicitis is mistaken for some condition not demanding prompt operative intervention, and where much valuable time is lost before the true condition is revealed.

It is important, therefore, for us constantly to bear in mind the fact that appendicitis in all its forms may present a symptom complex so closely resembling other grave pathological lesions as to deceive the most careful observer.

It is my purpose on this occasion to dwell for a few moments on this less frequent class of cases where errors in diagnosis may be fraught with dire disaster.

While time would not permit a consideration of all such possible errors, I beg to call your attention to a few which have come under my own immediate observation.

From a partial and necessarily incomplete re-

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view of my case histories extending over a period of about fourteen years, I find that I have encountered cases of acute appendicitis closely resembling functional indigestion, simple colitis, intestinal obstruction, cholecystitis, perforated gastric or duodenal ulcer, salpingitis, a suppurating or strangulated ovarian tumor, ruptured ectopic pregnancy, inflamed femoral or inguinal hernia, cellulitis of the abdominal wall, renal infection, tuberculous peritonitis, new growth, or Pott's disease. I have also encountered chronic cases of appendicitis in many instances, which would closely mimic gastric or duodenal ulcer, cholelithiasis, renal calculus, stricture of the colon; also numerous cases in which the only symptoms were those of a chronic and obstinate constipation, painful digestion or persistent vomiting.

Perhaps the most dangerous class of all are those cases of acutely developing gangrenous appendicitis in which the pain is not severe, the temperature and pulse both below 100 degrees, and the local tenderness and muscular spasm insignificant. These cases are by no means infrequent, the writer having recently encountered three within a period of four weeks. In two of these the blood count gave evidences of an acute septic process, in the third the blood count was within the normal limit, and the only evidence of grave disease was a well marked rigidity of the lower half of the right rectus muscle.

The importance of this class of cases has been so ably presented to the profession in an interesting communication by Dr. Algernon T. Bristow (*Long Island Medical Journal*, April, 1908) that I will content myself by reciting the histories of two patients.

A young man twenty years of age called upon the writer one morning suffering from slight epigastric pain, nausea, and general malaise. Temperature, 99 degrees; pulse below 100. There was a history of a supper of indigestible food, with vague discomfort during the previous night. No rigidity, only slight tenderness about the umbilicus. As the bowels had moved loosely, nothing but rest and a restricted diet were prescribed. The following day the pain had disappeared, the temperature was normal, but there was a slight tenderness and rigidity in the inguinal region. No blood count was taken. A few hours later the patient complained of discomfort in the appendix region when he turned in bed, there was a well marked rigidity of the rectus muscle, and slightly increased tenderness to deep pressure. The temperature had risen to 99.8 degrees, the pulse to 100. On operation there was found a moderate amount of cloudy fluid in the peritoneal cavity, and a completely gangrenous appendix.

Another case was seen only ten days ago. A child of ten vomited and complained of epigastric pain. These symptoms disappeared after cathar-

sis from castor oil. The following day the temperature was found to be 101 degrees, pulse about 100. She was seen by a colleague, who found slight muscular spasm and tenderness at McBurney's point. She was at once transferred to a hospital where I saw her in consultation about midnight. At that time the temperature had fallen to 99.2 degrees, the pain had disappeared, and the tenderness and rigidity were so trifling that doubt was expressed as to the correctness of the diagnosis. A blood count was suggested, and an operation advised on the following morning, unless all symptoms had abated. Three days later I again saw the patient in consultation. I was told that the temperature had been practically normal for two days, and that all pain and discomfort had disappeared, until within a few hours when vomiting had occurred and the temperature had again risen to 101 degrees.

At the time of my examination the temperature had again fallen to 99.2 degrees. There was absolutely no abdominal tenderness, but a well defined rigidity of the right rectus muscle, more marked in the upper half. Operation two hours later revealed a gangrenous perforated appendix lying in an abscess cavity which also contained two oval concretions.

As an example of a case resembling a sub-acute colitis the following may be mentioned:

A young lady twenty-two years of age after an indigestible meal complained of nausea, pain and diarrhoea. This was not wholly relieved by cathartic medication, and I saw her in consultation the following day. On examination there was well marked tenderness over the cæcum ascending and descending portions of the colon. The stools were frequent and contained much mucus. The temperature was 100.4 degrees, pulse 110, no rigidity of the abdominal muscles. As the tenderness was slightly increased over McBurney's point, and as the blood count was higher than would be expected in a simple colitis, operation was advised and an acute empyema of the appendix found.

While we are all familiar with that form of intestinal obstruction due to the intestinal paresis in the later stages of a diffuse peritonitis, I once encountered a case in which the symptoms from the first pointed to a mechanical obstruction of the bowel.

The patient, a middle-aged man with a history of previous intra-abdominal infection, complained of severe colic, vomiting, and a rapid distension of the abdomen. The vomiting at first consisted of stomach contents, later of bile; and the following day of fecal matter. There was at first no fever, and at the time of operation the temperature was but slightly above the normal. On examination, the abdomen was symmetrically distended and generally tender. The lower bowel had been emptied by enema, but no gas had been



expelled since the beginning of the attack. A diagnosis of acute obstruction was made, and immediate operation advised. On opening the abdomen an adherent gangrenous appendix was found compressing the ileum near the cæcum, also a small well-walled-off abscess.

That a high appendix when inflamed may simulate an acute cholecystitis, or even a perforated gastric or duodenal ulcer, is recognized by all surgeons of broad experience. While the differential diagnosis in these cases is generally easy if one is able to obtain an accurate history of the onset of the attack, in the later stages the symptoms are often misleading, as the following case will illustrate.

A stout, middle-aged woman of alcoholic habits was admitted to the Roosevelt Hospital suffering from a generalized peritonitis. For years she had suffered from attacks of pain in the epigastric and right hypochondriac regions, which would radiate to the back and thorax. These attacks would always be accompanied by vomiting, and would last from one to three days. At no time had she been aware of the presence of fever. This was the history given, but in the light of subsequent events was probably grossly inaccurate.

The present illness began by one of her characteristic attacks of epigastric pain, vomiting, and generalized abdominal tenderness. When admitted to the hospital forty-eight hours later there was general distension and tenderness, high fever, rapid pulse, and great prostration. As far as could be learned by palpation the point of maximum tenderness was over the gall-bladder region. Incision through the upper right rectus muscle revealed a purulent peritonitis. No lesion of the gall-bladder, stomach or duodenum. A second incision in the right inguinal region revealed a perforated gangrenous appendix as the cause of the peritonitis.

Had this patient been seen in the beginning of the attack the physical signs might easily have enabled us to avoid this mistake in diagnosis, but the history given of both her previous attacks and of her present illness strongly suggested a gangrenous gall-bladder as the original focus of infection.

Regarding the errors which are so frequently made in confusing appendicitis with acute pelvic conditions, the writer freely confesses to have made his full share.

The following cases will be cited to illustrate some of these mistakes in diagnosis.

The first case was not, in reality, an error in diagnosis, as the condition diagnosed was absolutely present, but the complicating appendicitis was unsuspected.

A middle-aged woman was admitted to the City Hospital suffering from acute pain in the lower abdomen, symptoms of severe shock and general prostration. A week or more before entrance she had experienced a milder attack of a similar nature from which she had rapidly

recovered. Her menstrual history suggested the possibility of an extrauterine gestation, and a physical examination revealed the presence of a large, moderately tender mass in the neighborhood of the right broad ligament. The temperature, at first normal, had gradually risen to 103 degrees, the pulse was accelerated, and the lower right half of the abdomen moderately tender to palpation. A diagnosis of a ruptured tubal pregnancy was made and operation advised. On opening the abdomen a large hæmatoma was found, in the center of which was imbedded an acutely inflamed appendix. The appendix, ruptured tube, and blood clots were removed and the patient made a satisfactory recovery.

The following case was observed early in my practice, and has already been reported in a paper entitled "Four Atypical Cases of Appendicitis" (*Annals of Surgery*, September, 1898). At the present time operation would undoubtedly have been undertaken at an early period, but the symptoms were obscure, and I doubt if even now I would have made a correct diagnosis.

A young woman aged twenty-five years, married, on several occasions during the past few years had experienced attacks of nausea, vomiting, and abdominal pain, which were usually relieved by a cathartic medication and a few days' rest in bed.

While on a pleasure trip to Florida she experienced one of these supposed attacks of acute indigestion, which was so severe at its onset as to necessitate a hypodermic injection of morphine for its relief. The following day she seemed relieved, but had a moderate amount of fever. This continued, varying from 100 to 102 degrees F. without pain or other symptoms. At first it was thought to be due to malarial poisoning, but as it resisted treatment by quinine, it was afterwards regarded as a mild typhoid. Ten days after the beginning of the attack, by the advice of her attending physician, she was brought to her home in New York. She was seen by the writer immediately after her arrival, and presented the following condition: Temperature 102 degrees F.; pulse 100; respiration normal; tongue thickly coated; abdomen slightly tympanitic, but without tenderness to pressure, with the exception of a small area in the left iliac fossa. Vaginal examination negative; urine normal. Patient did not complain of pain or discomfort, but felt tired. Mind seemed slightly sluggish. No cutaneous eruption. I stated to the family that, although I was unable at that time to make a positive diagnosis, I regarded her condition as probably one of mild typhoid. The following day she seemed better. Morning temperature 99.5 degrees F., evening 100.5 degrees F.; no other symptom. Patient took nourishment plentifully; bowels acted normally. During the next three days the temperature rose gradually; the tenderness in the left iliac region became slightly more marked, and there was a distinct induration detected by bimanual touch in the region of the left broad

ligament. She was then seen in consultation by Dr. H. M. Painter, who agreed with me in the belief that a positive diagnosis was impossible, but considered the condition as due either to a left-sided salpingitis, the early rupture of an extrauterine pregnancy, or to a rupturing cyst of the ovary or broad ligament. The possibility also of a transposition of the viscera and left-sided appendix was discussed, but abandoned. A delay of a few days was advised, with the understanding that, if the symptoms did not abate, an exploratory laparotomy was to be undertaken. From this time there was a gradual increase in the induration with an accelerated pulse, but without increased fever, muscular rigidity, or local tenderness. In fact, the patient complained of no pain and expressed herself as feeling more comfortable. Four or five days after the first consultation she was again seen by Dr. Painter. The abdominal mass had increased and seemed to be about the size of a small coconut; it occupied a position in the median line, extending more to the left than to the right. There was, however, for the first time more tenderness in the right inguinal region than over the center of the mass. The uterus was pushed forward and was rigidly fixed; there was induration, but no tenderness over the entire pelvic floor. The temperature kept between 101 and 102.5 degrees F.; pulse ranged in the neighborhood of 120 and was of fair quality. The patient complained of no discomfort, was cheerful and bright, took plenty of nourishment and slept well. It was the opinion of all who saw her that the case was probably one of a gradually increasing hæmatoma following the rupture of an extrauterine pregnancy, and an exploration operation was decided upon.

Under ether anæsthesia an incision was made in the median line from the umbilicus to the pubic bone and the peritoneal cavity opened. A tense, fluctuating mass was found occupying the entire lower third of the abdomen, which ruptured while being gently palpated and flooded the entire abdominal cavity with foul, fecal-smelling pus. Digital exploration of the abscess cavity revealed a lateral extension to the ileo-cæcal region, which was completely walled off by firm adhesions, and although no remains of the appendix were found, the occurrence twenty-four hours later of a fecal fistula from the region of the cæcum led to a positive diagnosis of appendicitis. It is probable that the appendix in this case was an exceedingly long one, extending across the pelvic cavity to the region of the left broad ligament, and that perforation occurred near its distal extremity.

The writer has twice seen an inflamed appendix in the sac of a hernia, once in a right inguinal, and once in a right femoral rupture. In both instances signs of inflammation of the surrounding soft parts led to an erroneous diagnosis of perforation of a strangulated loop of intestine.

In two instances in the writer's experience in-

flammation originating in a diseased and perforated appendix had spread to the abdominal wall leading to extensive areas of cellulitis completely obscuring the diagnosis. In one of these the case was a fulminating one, the infecting agent being the *B. ærogenes capsulatus*, the cellulitis involving nearly the entire abdominal wall. The other case was so atypical in its onset and course that a brief history will be given.

A middle-aged woman was transferred to the Surgical Department of the City Hospital with a diagnosis of abscess of the groin. The patient had complained for several days of indefinite abdominal pain and tenderness, and was first admitted to the gynæcological ward, upon the supposition that she was suffering from some pelvic trouble. She was carefully examined by a member of the house staff, who reported the result of his investigation as negative. For several days thereafter she was about the ward as a helper, and made no complaint to the physicians or nurses, which led to further examination, until about 4 A. M. of the morning of her admission to the surgical ward. At this time the house physician was called to relieve a severe pain in the right iliac region, which he found markedly indurated, hot, red, and tender. She was transferred to the surgical ward early in the morning and was seen by the writer shortly after noon. Her condition at that time may be stated as follows: Temperature, 103 degrees F., pulse, 130; respiration rapid and shallow, extremities cold, expression anxious. There was a deep red, boggy induration of the abdominal wall, extending from the right groin nearly to the free border of the ribs and for several inches to the left of the median line. Near the middle of Poupart's ligament was a small ulcerated opening, which discharged a small amount of a very foul-smelling, dark-colored pus.

Under ether anæsthesia a curved cutaneous incision was made from the tip of the twelfth rib to the opening near the middle of Poupart's ligament. This opened up the subcutaneous cellular space, which was found to be filled with a grayish necrotic mass, consisting of areolar tissue and the aponeurosis of the external oblique muscle. A sinus occupying a position near the internal abdominal ring connected this space with a very large deep-seated abscess cavity, which was freely laid open by cutting with scissors the remaining muscular layers in the line of the original incision, and which extended from Poupart's ligament behind the cæcum and ascending colon, to the right kidney. Upon raising up the tissues forming the roof of this enormous abscess cavity, a gangrenous vermiform appendix was seen on the under surface of the colon. During an attempt to secure and remove this, the anæsthetist announced that the patient was pulseless. A large mass of gauze was hastily stuffed into the wound and the binder applied. The patient was given hypodermic injections of strychnine and digitalis, and an

enema of hot coffee; external heat was applied and stimulant measures continued for several hours. After a prolonged period of profound sepsis, the patient rallied, ultimately recovered, and was completely restored to health.

From the rapidity of this process, and from the very extensive cellulitis, both subcutaneous and retroperitoneal, I infer that we had to do with a streptococcus inflammation of an extra-peritoneal, retrocæcal appendix; that this process extended in the cellular tissue, both upward to the kidney region and downward following the round ligament to the external abdominal ring, where it rapidly spread in the loose subcutaneous areolar tissue.

While in the writer's experience it not infrequently happens that a supposed case of acute appendicitis turns out to be an acute hæmatogenous infection of the right kidney, the opposite mistake is comparatively rare.

The following case which recently came under observation will serve to illustrate this point.

An eighteen-year-old boy was admitted to my service at the Roosevelt Hospital, suffering from right-sided abdominal pain, fever, and general malaise. Duration of illness four days. From the first the pain had been on the right side, which was tender and rigid. There had been no vomiting. On examination there was a marked muscular rigidity not especially marked over the rectus, but rather of the oblique muscles just above the anterior spine of the ilium. Costovertebral tenderness exquisite, McBurney's point only moderately tender. Leucocytes 1,800. The urine contained blood and pus cells, and a trace of albumen. Operation revealed a gangrenous retrocolic appendix which was in close relation with the right ureter.

The writer has on two occasions made a diagnosis of subacute appendicitis and an operation has discovered ileocæcal tuberculosis. In only one instance has the opposite mistake been made.

This occurred in a woman forty-three years of age, who had complained for several months of indefinite abdominal discomfort with a gradually distending abdomen and occasional attacks of fever. A large painless indurated mass was felt above McBurney's point and nearer the median line. Believing that we had to do with a tuberculous local peritonitis, the abdomen was opened, and an indurated mass discovered as large as an orange, which upon carefully separating the adhesions was found to be made up of an old inflamed appendix, several loops of adherent small intestine and a greatly infiltrated mass of omentum. In the center of this mass was discovered about 5 cm. of yellow pus.

A second case strikingly similar to the one just recorded was observed by the writer, but the mistake in diagnosis was not repeated.

Only one case strongly suggesting a new growth has been seen by the writer.

This occurred in a young woman eighteen

years of age, who complained of a swelling in the lower abdomen, but without pain or fever. On palpation, an oval slightly movable tumor was discovered just above the pubis. By bimanual palpation the tumor seemed to be globular in form and was thought to be an ovarian cyst. She was seen by a number of colleagues, one of whom made a diagnosis of hæmatometra. It was extremely difficult in this case to elicit any satisfactory history, and nothing in the examination indicated the mass to be of inflammatory origin. On operation the mass proved to be an old well encapsulated abscess surrounding a diseased appendix.

The following case was thought by the writer to be a psoas abscess from Pott's disease, and by others of the Roosevelt Hospital staff to be a sarcoma of the ilium.

An emaciated child four years of age was admitted to my ward suffering from a painful tumor of the groin, and marked psoas contraction. The tumor was situated just above Poupert's ligament, and was distinctly circumscribed, hard to the palpating hand, and non-fluctuating. It seemed firmly attached to the pelvis, and was only moderately tender to pressure. There was some fever but only a slightly elevated leucocyte count. The lower dorsal and lumbar regions of the spine were abnormally rigid. The child had been acutely ill for only a few weeks, but the parents could give us no idea of the duration of the tumor. She was examined by a large number of the staff, the majority favoring the diagnosis of a lumbar Pott's, sacroiliac disease or sarcoma.

Operation revealed the lesion to be an old appendicular abscess with extremely thick walls.

While these few cases by no means represent all the errors which the writer has made in mistaking acute appendicitis for other pathologic lesions of the abdomen, if their recital serves to enable any of his hearers to avoid similar mistakes, he will gladly accept the censure which may fall upon him, and which possibly he may deserve for his inaccurate observations.

Many of these mistakes occurred in my early experience, and might at the present time have been avoided. In recent years I have been much aided by remembering the following statement made by Murphy in one of his recent publications, and which I believe to be true in the great majority of cases of acute appendicitis:

"In my experience, the symptoms, in order of their occurrence, are, first, pain in the abdomen, sudden and severe, followed by nausea and vomiting and general abdominal sensitiveness; elevation of temperature, beginning from two to twenty-four hours after the onset of pain. These symptoms occur almost without exception in the above order, and when that order varies I always question the diagnosis."

Before leaving the subject of masked appendicitis I desire briefly to call attention to some of

the conditions which a chronic appendicitis may simulate.

While I have never believed that the removal of an appendix which on gross inspection shows no sign of pathologic lesion, can bring about directly any definite change in the symptoms of a coexisting functional digestive disorder; and which I am still unconvinced that slight connective tissue changes in the organ demonstrable only by the microscope can give rise to reflected pain, impaired digestion, chronic constipation, hyperacidity, anacidity, meteorism, nausea, anorexia, abnormal cravings, painful throbbing, numbness, exhaustion, mental depression, or any of the other subjective symptoms of neurasthenia, and do not believe that the relief to these symptoms which occasionally follows the removal of such an appendix has any scientific explanation other than that which obtains in the employment of other forms of suggestive therapeutics; still I do believe that certain definite lesions easily seen by the naked eye or appreciated by palpation, when due to a previous inflammatory process or the presence of a foreign body, may and often do give rise to certain well-recognized forms of digestive disorder.

As stated earlier in this paper, such chronic lesions of the appendix may give rise to symptoms closely simulating gastric or duodenal ulcer, cholelithiasis, renal or ureteral calculus, or stricture of the colon. They may also give rise to persistent vomiting and obstinate constipation.

The following cases may serve to illustrate some of these conditions:

A young man thirty-five years of age complained for fourteen years of gastric distress after eating, belching of gas, occasional acid eructations and vomiting. These symptoms would disappear at times when leading an hygienic life and by careful regulation of the diet, but would recur at the slightest indiscretion and would not infrequently be so severe as to render him wholly incapacitated for work. He had been under the care of a careful practitioner who had demonstrated hyperacidity and impaired motility of the stomach. Physical examination revealed a dilated stomach, pyloric tenderness, and slight sensitiveness to pressure over the appendix. As he had never had any attack which could be interpreted as an acute appendicitis, an exploratory operation over the gastric area was advised. At the time of operation the stomach duodenum and gall-bladder were found to be normal. Further exploration revealed a chronically diseased and strictured appendix. Six months after removal of the appendix his stomach symptoms had entirely disappeared and he had gained considerably in weight.

A man forty-eight years of age had suffered for years from indigestion and occasional attacks of acute pain in the right upper quadrant of the abdomen. In addition to these symptoms he also

suffered from flatulence, chronic constipation, mental depression and neurasthenia. He had lost weight and had practically given up active business. On physical examination he had persistent tenderness over the gall-bladder region. Occasionally he would complain of tenderness over the region of the appendix, ascending colon and in the left iliac fossa. Gastric analysis showed a moderate hyperchloridia. There was slight secondary anemia. He had never been jaundiced. He had consulted a number of physicians and had been told that he had gastric ulcer, gall-stones, chronic appendicitis, and various forms of so-called indigestion. In the writer's opinion, the attacks of right hypochondrial pain and persistent tenderness over the gall-bladder strongly suggested cholelithiasis as a cause of at least a part of his symptoms, although the possibility of a diseased appendix was mentioned.

On operation, the stomach duodenum and gall-bladder were found to be normal. The ascending colon and cæcum were dilated; the appendix, conical in shape, was filled with fluid and solid feces. There was no evidence of acute or chronic inflammation. The appendix was removed and the man made a satisfactory recovery. Six months later I learned that his pain had been relieved, but that his constipation and mental depression were still troublesome.

The following case presented clinically many diagnostic possibilities:

A man fifty-two years of age had complained of indigestion for twenty-seven years. For the past six years he had complained of acute attacks of right-sided pain and tenderness just below the junction of the outer border of the rectus muscle with the costal arch. For the past two years these attacks have been accompanied by considerable fever and an increasing prostration. During the last six months these attacks would occur about once in four weeks. The fever would at times reach 104 degrees F., and the attacks would last from one to six days.

When first seen by the writer, in an interval between the attacks, the only physical sign was well-marked tenderness one inch below the lower border of the ninth rib, and slight tenderness in the right costovertebral angle. A test meal showed no HCL in the gastric contents. There had been no jaundice. There was a moderate degree of anæmia. The urine was normal. Nothing abnormal could be detected in the ears, throat, heart or lungs. He was referred to the writer with the probable diagnosis of cholelithiasis. As I was unable to make a positive diagnosis at the time, he was advised to remain in the hospital for further observation. This he did for three weeks, during which he seemed perfectly well. After leaving the hospital he went to a suburban resort, where he had another attack of pain and fever. He was seen by my assistant, who found a temperature of 104 degrees F., marked tender-

ness just below the gall-bladder in front, and in the costo-vertebral angle. He also found a painful lymph node in the left axilla. The urine was negative. There was a moderate leucocytosis. After this attack, which continued for a week and was followed by marked prostration, he again entered the hospital for further observation. The only change in his physical signs were an increased sense of resistance in the right hypochondriac region and a well-marked tenderness in the right flank. Cystoscopy and ureteral catheterization showed a normal urine from the left kidney, and no efflux from the right in forty-five minutes. X-ray negative. The Moro tuberculin reaction was strongly positive.

From these findings I made a probable diagnosis of a tuberculous and non-functionating right kidney, although I could not exclude gall-stones with a subacute cholecystitis. The possibility of a retrocolic appendix was considered, but thought to be improbable.

Two months later the patient again entered the hospital for operation. The kidney exposed by lumbar incision was found to be normal. The gall-bladder, stomach and duodenum were also exposed and found to be normal. Further investigation, however, revealed a very long, much-thickened and adherent retrocolic appendix, which was removed. It is now five months since operation; there has been no recurrence of the pain or fever, and the patient states that he has not been as well in many years.

It may also be stated that at the time of operation the enlarged lymph node in the left axilla was removed and found to be tuberculous.

A man forty-five years of age was admitted to the hospital with a history of several attacks of right inguinal pain, without fever, radiating to the groin. On X-ray examination an oval shadow was seen over the course of the ureter just opposite the transverse process of the fourth lumbar vertebra. The ureter was exposed and no stone or other abnormality found. The peritoneal cavity was next opened and a chronically diseased appendix removed, with complete relief of symptoms.

A young man thirty years of age consulted the writer for periodic attacks of sharp pain in the lower abdomen, without vomiting, fever or muscular spasm. The attacks of pain would appear irregularly and without relation to taking food. He also suffered for years from an obstinate constipation, which was not at all relieved by diet or exercise. He was obliged to resort to laxative medicine, which had to be varied at frequent intervals. His condition, though not in any way serious, annoyed him greatly, and led him to consult a number of physicians and undergo various forms of treatment.

Seeing him shortly after one of these periods of colicky pain, I found him without fever or muscular spasm. There was, however, a general

distension of the intestines, with gas and a point of distinct tenderness near the ileocæcal region.

Removal of his appendix was strongly urged by his family physician, and I rather reluctantly consented, but expressed grave doubts regarding the presence of an appendicular lesion or the likelihood of benefit from operation. On opening the abdomen a thickened and strictured appendix was found and removed. He made an uneventful recovery and several months afterwards expressed the greatest satisfaction at the result, as the chronic constipation had entirely disappeared, and with it the distressing attacks of colic.

The following case was one of several closely resembling each other which have come under my observation.

A young married woman of artistic temperament who had always enjoyed good health, in August, 1906, began to suffer from daily attacks of nausea and vomiting, apparently unassociated with the taking of food and unaccompanied by other symptoms of digestive disorder. She had been under the care of a well-known specialist in gastric disorders, who had carefully investigated her digestive functions and arrived at the conclusion that the vomiting was of reflex origin. Three months after the onset of her symptoms she passed a menstrual period, but without change in the frequency or character of her vomiting. When first seen by the writer she gave a rather indefinite history of previous attacks, which might be interpreted as of a mild catarrhal appendicitis, but nothing immediately preceding the onset of her vomiting. In this case also I was induced to operate more by the urgent advice of her attending physician than by any conviction on my part that the cause lay in a diseased appendix.

At the time of operation, which was about six weeks after her last menstruation and four months after the onset of the vomiting, a fairly normal-looking appendix was removed, having a hard nodule at its distal extremity. This on section was found to be made up of firm cicatricial tissue which completely obliterated the lumen for a distance of about half an inch. As the patient did not believe herself to be pregnant the uterus was palpated during the operation, and was found to be moderately enlarged and soft. She made a satisfactory convalescence, and never vomited after the effects of the anæsthetic had passed. The pregnancy was not interrupted, and in the following August she gave birth to a healthy child.

The writer has no explanation to offer or theory to advance why a chronic lesion of the appendix should manifest itself so frequently by functional disturbances in a remote portion of the gastro-intestinal tract or in other viscera. Neither has he any explanation of the fact that definite inflammatory changes are so frequently found in the appendix without a history of some previous acute attack.

For many years he refused to operate in such cases unless he could elicit such a history of an acute lesion, believing that these chronic changes could not occur except as a result of acute infection.

Increasing observation, however, has convinced him of the error of this view, for during recent years many cases have been observed, with gross easily demonstrable evidences of chronic inflammation without the slightest history of an acute infection.

**ANALYSIS OF 1,411 OPERATIONS UPON THE APPENDIX.\***

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**T**HIS report is based upon all the operations performed upon the appendix by the various operators in the Presbyterian Hospital, New York, during the years 1906, 1907, 1908 and 1909. These numbered 1,411, divided, in a general way, as follows (see Table No. 1): Acute cases 687, chronic and relapsing 512, and cases in which the appendix was removed in association with other precedures 212. This latter division will not be taken up at all in the first portion of this report, which deals with operations on the appendix alone (*i. e.*, for appendicitis in some form), but will be considered as a separate heading in the last section.

*Sex.*—Analysis of the sex in the acute, chronic and relapsing cases shows a variation from that given by other writers. Thus Johnson (*Surgical Diagnosis*, 1909), makes the statement that appendicitis occurs in the proportion of four men to one woman. The proportions in other statistics are:

Sonnenberg ..	1,000 cases.	67 per cent.	were males.
Roux.....	670 "	53 "	" "
Barbier.....	616 "	76 "	" "
Deaver.....	300 "	61 "	" "

Total ..... 2,586 cases. 64.2 per cent. were in males.

In this series of 1,199 operation for acute, chronic and relapsing conditions, taken as a whole, there were 604 males, or 50.3 per cent., and 595 females, or 49.7 per cent., an almost equal number in each. There is no apparent reason why there should be a difference in the frequency in the two sexes. Our statistics show that the milder, or more chronic, the inflammation the more frequently does it affect the female. Thus, in 512 chronic and interval operations, 37 per cent. only affected males, while 62 per cent. occurred in females. In the slightly severer inflammation (the acute catarrhal, 92 operations), the disproportion between the two sexes is less, though still more frequent in the female, 42 per cent. being in males and 57 per cent. in females. Very different proportions, however, are found when we analyze the 595 operations for the severe lesions, taken as a whole (suppurative, gangren-

ous and abscess conditions). In these 63 per cent. affected males and 37 per cent. females. One sex does not seem to be much more disposed in this last class of severe lesions to a fatal issue than the other. For if, as before, we exclude the acute catarrhal and include the suppurative, gangrenous and abscess cases (595 operations, total mortality 68, males 45, females 23), 66 per cent. of the deaths occurred in males and 33 per cent. in females, or a proportion of two males to one female dying, the frequency of occurrence in the two sexes (63 per cent. males, 37 per cent. females) being thus proportionately about equal to that of the mortality (66 per cent. males, 33 per cent. females) *i. e.*, sex does not seem to influence the mortality to any extent.

*Age.*—(See Table No. 2.) Kelly makes the statement that four-fifths of all cases of appendicitis occur before the age of thirty, and more than half before twenty. Our statistics do not quite bear these figures out. 33.9 per cent. (404 cases), or a little over a third, occurred before twenty years of age, while 68.9 per cent. (821 cases), or a little over two-thirds, occurred before thirty. 19 per cent. (227 cases) occurred in patients between 30 and 40 years of age. The youngest patient was 21 months (recovered). The oldest was 72 years in whom an abscess was opened without removal of the appendix. Cultures showed streptococci and colon bacilli. Death from sepsis.

The bearing which age has upon the mortality is interesting and instructive (see Table No 2). The extremes of life stand the disease badly. Under 5 years of age, there were 16 patients operated upon with 3 deaths, or a mortality of 18.7 per cent. The high mortality in children under 5, I believe to be due to the fact that the disease is more difficult to diagnose in them than in adults. It is also more treacherous and stealthy and the lesions severer. The average day of the disease upon which these 16 children were operated was the 4th. The 3 deaths among them were in children operated upon on the 4th day (2 cases) and 5th day (1 case), all 3 having gangrenous appendices associated with general peritonitis. The condition is usually diagnosed as acute gastritis and only after the symptoms become serious is the correct one made. The shocking death-rate of 66.2-3 per cent. is found in the 9 patients (6 deaths over 60 years of age) who were operated upon for acute lesions. I attribute this high death-rate to the attempts on the part of the physicians, who were first called, to tide these patients over their acute attack, operation being hesitated in because of the increased risk due to their age. This is a more unsafe view to take in these old persons than it is in younger persons, if such a thing be possible. The very increased risk, due to their diminished powers of resistance to infection, renders early operation imperative, if we are to save them, earlier even than in younger persons. The durations of the disease in these 6 fatal cases

\* Read at the annual meeting of the Medical Society of the State of New York, January 26, 1910.

were 10 hours, 30 hours, 4, 5, 10 and 11 days respectively.

The lowest death-rate was found to be among the 206 patients between 20 and 30 years of age, of whom 8 died, or 3.8 per cent.

TABLE NO. 2.—AGE.

	Acute Cases		Mortality in Acute Cases		Chronic Cases		Totals	
	Number of Cases	Per cent. of whole	Number of Deaths	Per cent. in each	Number of Cases	Per cent. in each	Number of Cases	Per cent. in each
Under 5 .....	16	2.3	3	18.7				
Between 5 and 10 .....	39	5.7	3	7.9	10	1.9	65	5.4
"    10 " 20 .....	217	31.8	24	11.0	122	24.0	339	28.5
"    20 " 30 .....	206	30.2	8	3.8	221	43.5	427	35.8
"    30 " 40 .....	118	17.3	12	10.1	109	21.4	227	19.0
"    40 " 50 .....	53	7.7	8	15.0	37	7.4	90	7.5
"    50 " 60 .....	24	3.5	4	16.6	7	1.3	31	2.5
"    60 " 70 .....	7	1.0	5	66.6	2	.4	9	.7
"    70 " .....	2	.2	1				2	.1
Totals.....	682		68		508		1190	

COMBINED STATISTICS OF AGES.

Total up to 20 ...	272	39.8	132	25.9	404	33.9
Total up to 30 ...	468	68.6	353	69.4	821	68.6

*Analysis of the Mortality.*—(See Table No. 1.)

The total number of patients operated upon was 1,411, of whom 72 died, or a mortality of 5 per cent. 212 of these, however, were cases in which the appendix was removed in association with other procedures, which leaves 1,199 operations for some variety of appendicitis. These latter alone will now be considered.

In any given statistics the mortality rises and falls with the relative number of acute (and complicated) and quiescent (chronic and relapsing) cases operated upon, and to obtain a fair view of the actual operative mortality it is necessary to divide the operations into two distinct classes:

1. Those performed during quiescent periods of the disease, *i. e.*, for chronic and relapsing (interval) conditions.

2. Those performed in the presence of acute lesions.

1. Chronic and relapsing conditions: (See Table No. 1). In this category there were 512 operations performed with 3 deaths, or a mortality of 0.5 per cent. These 3 deaths were as follows: One patient died on the 21st day after operation of lobar pneumonia and pulmonary thrombosis. The second patient died on the 4th day of acute nephritis (suppression). The third patient died on the 4th day of general septic peritonitis, due to the slipping of the ligature off the base of the appendix. In this case two plain catgut ligatures had been used without any subsequent burying of the stump. While a number of authorities advocate this method of treating the stump, the additional burying of the base of the appendix seems wiser and safer. Comment on these 3 deaths is unnecessary except to say that two of them were unavoidable, while the third

TABLE NO. 1.—VARIETIES, NUMBER OF CASES AND MORTALITY IN EACH.

ACUTE CASES, VARIETIES	1909 and 1908			1907			1906			Totals, 1909-1906, Inclusive		
	Total No. Cases	Recov-ered	Died	Mort. per cent.	No. Cases	Recov-ered	Died	Mort. per cent.	No. Cases	Recov-ered	Died	Mort. per cent.
Acute Catarrhal.....	42	42			18	18			92	92		
Acute Suppurative .....	85	84	1		36	36			154	150	4	2.5
Acute Suppurative, with Abscess .....	13	13			2	2			33	32	1	3.3
Acute Suppurative, with General Peritonitis.....	8	4	4		2	1	1		13	8	5	38.4
Acute Gangrenous .....	66	65	1		37	37			118	116	2	1.6
Acute Gangrenous, with Abscess .....	78	75	3		37	36	1		147	138	9	6.1
Acute Gangrenous, with General Peritonitis.....	34	17	17		19	12	7		70	27	33	47.1
Incision of Abscesses without removal of Appendixes.....	26	22	4		19	15	4		60	46	14	23.3
Acute Cases, Totals.....	352	322	30	8.5	170	157	13	7.6	687	619	68	9.8
Chronic and Relapsing Cases.....	262	259	3		126	126			512	509	3	0.5
Acute and Chronic Appendicitis, Totals.....	614	581	33	5.3	296	283	13	4.4	1,199	1,128	71	5.9
Appendix removed, in association with other (primary) operations.....	127	127			38	37	1		212	211	1	0.4
Totals.....									1,411	1,339	72	5.1

should not have occurred. A number of cases where the ligatures have slipped from the stump are reported, however, *e. g.*, in the report of 2,000 appendix operations performed at Mt. Sinai Hospital, New York (Moschowitz, *Archiv. für Klin. Chir.*, Bd. 82, Heft 3), this accident occurred in 2 cases.

2. Operations performed in the presence of acute conditions: ((See Table No. 1.) Under this category there were 687 operations, with 68 deaths, or a mortality of 9.8 per cent.

Brewer in his *Surgery* (1909) makes this statement as to the mortality in the acute cases: "In early acute cases when the inflammation is limited to the appendix, the mortality should not exceed 2 or 3 per cent., in abscess cases not greater than 5 per cent., but in late neglected cases where there is a diffuse peritonitis, the mortality will be from 50 to 80 per cent., the former figure representing the mortality to be expected in children, the latter in adults."

In the present statistics there was a mortality of 1.6 per cent. (364 patients, 6 deaths), in the early acute cases limited more or less to the appendix. In the abscess cases with removal of suppurative or gangrenous appendices, the mortality was 5 per cent. (180 patients, 10 deaths). In the abscess cases without removal of the appendices, the mortality was 23 per cent. (60 patients, 14 deaths). There was a mortality of 42 per cent. in the late cases with general peritonitis (83 patients, 35 deaths), *i. e.*, in children of 10 years or under, the mortality was 50 per cent. (14 cases, 7 deaths); in patients with general peritonitis over 10 and under 20 years of age, the mortality was 38.4 per cent. (26 patients, 10 deaths); while in adults over 20 years of age with general peritonitis, the mortality was 48.4 per cent. (43 patients, 21 deaths).

For a satisfactory estimation of the results of operations during the acute stages, the classification adopted by Sprengel is the most convenient. Thus, "Early Operations," those undertaken during the first 48 hours; "Intermediate Operations," those performed from the 3d to the 6th day inclusive, and "Late Operations," those performed from the 6th day onwards. The present status among surgeons of the question of operating in acute appendicitis may be fairly stated briefly as follows: I quote freely from Murphy (Keen's *Surgery*, Vol. IV, page 773): "From the clinical course and pathological changes, it is evident that the most favorable time for operation it within the first 32 hours of the attack (early operations) or, from a pathological basis, before perforation of the appendix or infection of the periappendicular tissues has taken place. The diagnosis can and should be made with accuracy in the great majority of cases before the end of the first 24 hours. From the symptoms and clinical course of the disease in the first 48 hours, it is impossible to predict with any degree of cer-

tainty what the subsequent course of the disease will be—that is, whether the tendency will be to subsidence and cure by the natural processes or to a virulent course, if not fatal termination. The danger of operation in this stage is but a trifle above that of the operation undertaken in the interval, while the patient is spared the dangers of serious complications." In short, patients with acute appendicitis in the early stage should be operated upon immediately, and this statement voices the views of most surgeons generally in America, including Dr. Ochsner and his followers.

The intermediate stage, from the 3d to the 6th day inclusive: The question of whether to operate or not during this period is the crux of the whole appendix situation and, unfortunately, at the present time, authorities differ as to the better plan of procedure. I quote again from Murphy: "Should we operate in the second (intermediate) stage, during the increasing or spreading inflammatory process, which may mean anywhere from the second to the fifth day? In this stage we may have the circumscribed abscess around the appendix, an active inflammatory process of the neighboring tissues or organs, or the early pathologic changes of a circumscribed or general peritonitis. We often find the temperature and pulse high, meteorismus, intestinal paralysis, and acutely infected tissues, with manifestations of severe intoxication at this stage. Shall we then operate?" The answer to this question divides the surgical world into two camps: the one advocates the Ochsner treatment of diminishing peristalsis and delaying operation in the hope that the diffuse or general peritonitis will subside into a local process and form a circumscribed abscess which can be opened later when the severe abdominal symptoms and general toxæmia have subsided. Some of their statistics are alluring (*e. g.*, Guerry, *Jour. Amer. Med. Assoc.*, January 1, 1910), but before being convincing, it will be necessary to know how many of the patients, treated in this way, die without localizing the process into an abscess, hence go unoperated. I have seen no such statistics. Patients who have strength enough to survive the battle are operated upon and the unfit are eliminated. This method seems ideal for the statistics of the operator and perhaps better calculated to minister to the surgeon's reputation than to the safety of the patient. How is anyone to tell in advance whether a given spreading or diffuse peritonitis will not go on to a general and fatal peritonitis? Unquestionably it will not do so in the majority of cases, but it is the minority that we must seek to save.

The Ochsner method of treatment has been widely misunderstood and wrongly applied. Many have falsely interpreted it to mean that operation in all acute cases, even in the early stage, should be delayed, and great harm has been



done because of the letting slip by of the most favorable time for successful operation, namely, at the outset. Perhaps it would be well to outline the Ochsner method of treatment in order that there may be no misunderstanding as to exactly what is meant. We may divide it into two parts—the first finds no dissenters among surgeons and relates to efforts to be used to diminish peristalsis, hoping thereby to limit the spread of the inflammation. It consists in the use of gastric lavage, the giving absolutely of no nourishment of any kind and no cathartics by mouth, the giving of no large enemata, the continuous administration of normal salt solution by rectum by the drop method, and the giving of nourishment exclusively by the rectum, and perhaps a modified Fowler position. The second and more criticized portion of the Ochsner treatment consists in the delaying operation in the severe (intermediate or late) cases (and these only, be it noted), in the hope that by the employment of the means outlined above peristalsis will be so diminished as to limit the spread of the diffuse or general peritoneal inflammation and that a local abscess will form which can later be opened. Further discussion of this topic will be carried on when considering mortality figures.

The second camp is made up of those who answer the question of whether to operate in the intermediate, or dangerous, stage by a Yes. Morris (*Jour. Amer. Med. Assoc.*, January 1, 1910, Page 11), puts it as follows: "The Ochsner treatment is one of the most important things that was ever brought forward, but instead of carrying it out exactly as Dr. Ochsner does, I believe in doing an operation consuming 3 or 4 minutes. Get in, snap forceps on the appendix and put in a little drain. You are not doing much to that patient. You are not lessening his chances very much." All the operators in the Presbyterian Hospital belong to this second camp and the statistics in this paper are made up of cases, with a few exceptions only, treated on such lines, viz., no delay in operating in all stages of the disease.

A medical colleague (Fussell, *New York Medical Jour.*, January 22, 1910, p. 175), puts it well, as follows: "I thoroughly believe that at least three-fourths of the cases of appendicitis would recover if not operated upon, but I know there are no symptoms that will tell when any case is approaching the danger line until it is extremely dangerous either to interfere or to wait. I have said that the time to operate is when a diagnosis is made. I believe this holds good whether a diagnosis is made early or late. I am well aware that some of the best surgeons are opposed to this action. They teach that after a certain stage is reached it is safer to wait for resolution or an abscess and then operate. Truly, if we were sure that the case would not perforate or sure that the abscess would not rupture into the abdominal cavity, that is good advice. But no man

can be sure of this. We can be sure of a very small mortality if a good surgeon operates at any time. It seems just as rational to operate if there is pus in the abdomen, whether it be due to appendicitis or to a perforated ulcer."

*Factors Influencing the Death-Rate.*—We have already noted the effect which the age and the sex have upon the prognosis. It would be instructive to examine the acute cases to see how the presence or absence of previous attacks and the duration of the disease at the time of operation influence the prognosis.

*Previous Attacks in the Acute Cases.*—By reference to Table No. 3, we find that of the 647 acute cases in which the presence or absence of previous attacks are given, 34 per cent., or a little over a third of the patients, had had one or more previous attacks, while 65 per cent., or a little less than two-thirds, had had no such previous attack. In a general way we may infer by analyzing this table that the milder the pathological lesion, the more likely is the patient to have had one or more previous attacks, and the severer the lesion the less likely. Thus in the acute catarrhal cases, 55 per cent. had had previous attacks; in the next severer type, the suppurative, 39 per cent. only had had previous attacks, while in the acute suppurative and gangrenous cases with abscesses, 30 per cent. gave a history of previous attacks. 26 per cent. of the patients with the severest lesions, those with general peritonitis, or a little over a quarter of the patients so affected, had had previous attacks. The most striking fact, however, is elicited from this table from the fatal cases. But 14 per cent. of the fatal cases, or about one-seventh, had had previous attacks. We may infer from this, I think, that antecedent attacks tend to surround the appendix with protective adhesions, so that in a subsequent attack general peritonitis is less likely to occur.

But statistics show that of the patients with acute inflammations who had had previous attacks, the recurrences took place in 38 per cent. (somewhat over a third) within six months, 66 per cent., or two-thirds, within the first year, and 82 per cent., or somewhat over four-fifths, within two years of the first attack.

TABLE NO. 3.—PREVIOUS ATTACKS.

Number	Number of Patients	Percent.
1 Attack .....	102	53.1
2 Attacks .....	41	21.3
3 " .....	7	3.6
4 " .....	7	3.6
5 " .....	3	1.5
6 " .....	2	1.0
A "Number" of Attacks.....	27	14.0
10 Attacks .....	2	1.0
12 " .....	1	.5
Total .....	192	

A trifle over half the patients (53 per cent.) who had had previous trouble (see Table No 4), had had but one previous attack, 21 per cent., or somewhat over one-fifth, had had two attacks, while 25 per cent., or one-quarter, had had more than two previous attacks.

TABLE NO. 4.—NUMBER OF PREVIOUS ATTACKS, ACUTE CASES.

Acute Catarrhal.....	{ None 40, or 44.4% Present 50, or 55.5%.
Acute Suppurative.....	{ None 89, or 60.5% Present 58, or 39.5%.
Acute Suppurative and Gangrenous Cases with Abscesses...	{ None 118, or 69.4% Present 52, or 30.6%.
Incision of Abscesses without removal of Appendix.....	{ None 37, or 72.5% Present 14, or 22.5%.
Acute Suppurative and Gangrenous Appendices with General Peritonitis.....	{ None 55, or 73.3% Present 20, or 26.6%.
Total, 647 cases.....	{ None 422, or 65.2% Present 225, or 34.7%.
Fatal cases, 58.....	{ None 50, or 86.2% Present 8, or 13.9%.

*Duration of the Disease at the Time of Operation and its effect upon the Mortality.* (See Table No. 5.)

TABLE NO. 5.

Day of Disease at Time of Operation	Number of Cases	Died	Mort. per cent.	Combined Statistics, Duration	Number of Cases	Died	Mort. per cent.
1st Day.....	135	5	3.7	On or before 2d day	280	14	5.0
2d ".....	145	9	6.2				
3d ".....	103	8	7.7	From 3d to 6th day inclusive..	251	32	12.7
4th ".....	72	13	18.0				
5th ".....	55	8	14.5				
6th ".....	21	3	14.2	From 7th to 10th day inclusive	79	16	20.2
7th ".....	48	10	20.8				
8th ".....	11	2	18.1				
9th ".....	5	1	20.0				
10th ".....	15	3	20.0	All cases operated upon after 6th day	156	21	13.4
11th ".....	4	1	25.0				
12th ".....	5	1	20.0				
13th ".....	1	.....	.....				
14th ".....	27	3	11.1				
17th ".....	1	.....	.....				
21st ".....	5	.....	.....				
Data Missing.	34	1	.....				
Totals.....	687	68	9.8				

Whatever may be the difference of opinion as to the best treatment of the acute cases after the second day of the disease, surgeons are generally of the opinion that the greatest factor in reducing the mortality is the earliest possible removal of the appendix after the onset of the disease. Thus, 20 of our cases were operated upon within 16 hours of the beginning of symptoms, only one of whom died (64 years old) on the 9th day after the removal (10 hours after the onset) of a suppurating appendix, from a complication (acute pericarditis in association with chronic valvular disease) which could neither have been foreseen nor avoided. In this fatal case the abdominal conditions at the time of death were perfectly

satisfactory. We may venture to assert, then, that operations for acute appendicitis performed within 16 hours of the onset will commonly result in no mortality, except that due to very exceptional circumstances. There were 115 patients operated upon between the 16th and 24th hours after the onset with a mortality of 4, or 3.4 per cent. 3 of these 4 patients had gangrenous appendices with spreading or diffuse peritonitis and died on the 3d, 6th and 22d days after operation as the direct result of peritonitis, *i. e.*, sepsis. Smears and cultures of the exudate showed the infections in one to be caused by streptococci with colon bacilli, in the second by streptococci alone, and in the third by pyocyanus with colon bacilli. The fourth patient had a gangrenous appendix and died on the 9th day of sudden pulmonary embolism, that apparently unavoidable complication which may be met with in almost any operation of whatever nature. Such cases illustrate only too strikingly how treacherous this disease may be even within a comparatively few hours of the onset and how necessary it is that, unless definite contraindications exist, operation should be undertaken at the very outset without waiting for the development of symptoms indicating whether the attack is going to be a mild or severe one. Murphy says (Keen's *Surgery*): "To me there appears to be no excuse, no explanation, no logical process for, no justifying hope in, delay in this disease." These fatal cases make one face the discouraging fact also that, operate however so early we may, there is likely to be a certain unavoidable mortality.

With the passage of time after the first day the mortality mounts. Thus, on the second day, there were 145 patients operated upon with 9 deaths, or 6 per cent. of those operated upon during that time. Peritoneal sepsis was directly responsible for death in 6 of these cases, 2 others died after operations for intestinal obstruction, while the 9th died of pneumonia. Of 103 patients operated upon on the 3d day, 8 died, or a mortality percentage of 7.7. The 4th day gives a death-rate of 18 per cent. (72 operations, 13 deaths). The operations on the 5th and 6th days are about equally fatal, each 14 per cent. If we combine the operations performed from the 3d to the 6th day inclusive the mortality is 12.7 per cent. This is the so-called dangerous period in which Ochsner and his followers do not operate on the severe cases but wait, expecting to open a local abscess later. What are the results if we do operate later than the 6th day? Before answering this inquiry with figures, let us see what the adherents of the Ochsner treatment believe to be the best days on which to operate.

In a remarkable series of appendix operations published by Guerry (*Jour. Amer. Med Assoc.*, January 1, 1910, p. 4) and treated by the Ochsner method, he says that the patients coming into his hands on the 3d and 4th days were tided through

this period of great danger and "several days" later were safely operated on for localized appendicitis. Again, Haggard (same journal, p. 10) suggests waiting until the 10th to the 14th day. Stanton (same journal, p. 10) says, "If things are let alone for a few days it will be found that all these patients at the 8th or 9th days have localized abscesses, an easily treatable—surgically drainable—lesion. These abscesses should not be allowed to go on beyond this period, for it is after the 12th day that we find the pus beginning to seek exits of its own, pyemia, metastatic abscesses, etc.

If we take Guerry and Stanton's time to operate as any day from the 7th to the 10th, by analyzing our statistics (see Table No. 5), we find that we have not gotten as good results as though we operated from the 3d to the 6th day inclusive. For, from the 7th to the 10th day inclusive, the mortality was 20 per cent. of those operated upon during that period (79 operations, 16 deaths), as against a mortality of 12 per cent. of those operated upon from the 3d to the 6th day inclusive. If we take Haggard's time for operation as from the 10th to the 14th day inclusive, we find that the mortality is 15.3 per cent. (52 cases, 8 deaths), which is a somewhat better showing than operations performed from the 7th to the 10th day inclusive, but not so good as the results obtained when the operations were performed from the 3d to the 6th day.

I submit that there may be a different type of appendicitis in New York City from that found in South Carolina, Tennessee or Illinois. Our patients are drawn from the poor sections of the east side of New York City and are ill calculated to withstand and overcome prolonged sepsis such as must occur if the Ochsner treatment be carried out. It may be that acute appendicitis requires different treatment in various sections of the country.

Let me instance 4 cases treated according to the Ochsner method, all with fatal results.

CASE 2087. Male, 32, sick 14 days, localized abscess, size of adult head. Incision, appendix not removed. Seven days after first operation, subdiaphragmatic abscess opened in 10th space, posterior axillary line, under cocaine anæsthesia, evacuating a pint and a half of pus. Death three days later from exhaustion.

CASE 2462. Male, 51, sick five days, condition poor, very tender and rigid over whole right half of abdomen. Ochsner treatment until the 10th day, then operation. At least a quart of thick, fecaloid pus escaped. Cavity extended from liver to pelvis. Gangrenous appendix lay loose in cavity. Ligation to stump. Drainage. Time of operation, 15 minutes. Died on the second day following of exhaustion.

CASE 4110. Male, 43, sick 2 days. On admission great distension over whole abdomen, vomiting every few moments. Ochsner treatment until 7th day. Slight general and local improvement but not sufficient to warrant further delay. Incision in right side, evacuating in a spurt large quantities of pus under great tension. No search for appendix. Drainage. Died on the 2d day from exhaustion.

CASE 895. Female, 17, pregnant 6 months. Sick 3 days. Ochsner treatment until 8th day, then opera-

tion. Gangrenous appendix removed and an extensive abscess evacuated of which the large uterus formed one wall. Aborted 9 hours after operation. Death on the 3d day after operation of exhaustion.

In patients such as we see, a few experiences such as the above have discouraged us from wide application of the Ochsner method.

In 3 fatal cases with severe symptoms (all had gangrenous appendices with general peritonitis, and of 2, 5 and 7 days' duration respectively), the blood contained, as shown by cultures, in one case streptococci, in the second colon bacilli, and in the third staphylococcus aureus. Few such cases will be saved by any form of treatment, but is it not much more rational to at once remove the primary focus and to divert it externally by drainage, so as to diminish as much as possible the absorption of organisms, than to adopt the expectant method of delayed operation trusting the patient to take care of such an amount of infection unaided. Under the Ochsner treatment I believe none of these cases of septicæmia would have reached the time for operation, but our statistics in that event would have been improved by just so many fewer fatalities.

While on the subject of the mortality, it may be pertinent to say that the incision of abscesses alone without the removal of the appendices has not proved very satisfactory. (See Table No. 1.) Deaver (*Annals of Surgery*, December, 1909) voices the same sentiment. Haggard, in the article quoted above, says this: "There are a great many delayed cases in my section of the country and we operate on these simply by incision and drainage. We do not bother about the appendix and all the patients recover." We do not get such results in New York, for of 60 cases simply drained, 14 died, a mortality of 23 per cent. of cases so treated. I may say, however, that a number of these cases were operated on in the presence of general peritonitis in which the incision was a dernier resort. The durations of the disease in these 14 fatal cases treated by simple incision without removal of the appendices were:

3	days' duration,	2 cases.
4	"	" 1 case.
5	"	" 1 "
6	"	" 1 "
7	"	" 3 cases.
8	"	" 1 case.
9	"	" 1 "
12	"	" 1 "
14	"	" 3 cases.

The causes of death in these 14 cases treated by simple incision alone were as follows:

Pulmonary Embolism.....	2 cases.
Numerous Pus Pockets or Secondary Abscesses.....	4 cases.
Septic Infarcts of Lung and Liver.....	1 case.
Continued Sepsis.....	7 cases.

In the surgical report of St. Luke's Hospital, New York, it is stated that in 1908 the appendix was not removed in 16 cases with 3 deaths, or 18 per cent. mortality.

I may state that blood pressures were taken in about 30 of the acute cases before operation but that such blood pressures indicated nothing from a prognostic standpoint, the pressures not varying to any significant extent in the favorable and fatal cases until just before death.

The causes of death in the acute cases were as follows:

Intestinal Obstruction .....	4	cases
Continued Sepsis .....	53	"
Pulmonary Embolism .....	3	"
Pneumonia .....	2	"
Abscess of Lung .....	1	case
Septic Infarcts of Lung and Liver.....	1	"
Pericarditis .....	1	"
Diphtheria .....	1	"
Pylephlebitis .....	1	"
Hemorrhage from Ulcer of Intestine.....	1	"

A collective investigation by a Commission of the Berlin Medical Society of the appendix operations which had been performed in the Berlin hospitals during the entire year of 1907, reported as follows:

- 1,344 acute cases, died 197. Mortality per cent., 14.6.
- 105 operations on first day, died 1. Mortality per cent., 0.9.
- 318 operations on second day, died 23. Mortality per cent., 7.0.
- Total mortality first two days, 5.6 per cent.
- 238 operations on third day, died 23. Mortality per cent., 10.0.
- 683 later operations, died 150. Mortality per cent., 23.0.

Different ages showed different results:

0-10 years.	Mortality, 17.4 per cent.
10-20 "	5.3 " "
20-30 "	10.0 " "
30-50 "	21.0 " "
50-70 "	80.0 " "

Churchman (*Johns Hopkins Hosp. Bull.*, 1909, xx, 31) says that, of 1,223 cases of appendicitis noted at Johns Hopkins, 9 were in children under 5 years of age. Noteworthy was the tendency to early perforation (7 cases) and the frequency of spreading peritonitis. Intestinal obstruction occurred in these 4 times.

*Post-Operative Complications Occurring in the Acute Cases.* (See Table No. 6.) These have an important bearing upon the mortality.

Pregnancy was a coincident condition in 6 cases, 1 at 2 months, 1 at 3 months, and 2 at 4 months. None of these 4 patients aborted after operations for severe lesions, nor did any of them die. 2 were operated upon when pregnant 6 months. Both aborted spontaneously, 1 nine hours, and the other two days after operation, and both these patients died. It is thus evident that pregnancy may be a serious complication if acute appendicitis occurs during the later months of pregnancy and is a condition which urgently requires early operation to prevent the death of the child from sepsis and the mother from exhaustion. For a report of 276 cases of pregnancy associated with appendicitis, see Renvall, *Mittelingen*, etc., Bd. VII.

Pulmonary embolism occurred 4 times, or 0.5 per cent. in 687 acute cases, with 3 deaths. In

none of these cases was there a coincident visible phlebitis. The deaths from this cause occurred on the 3d, 9th and 10th days respectively. In the patient who recovered this complication occurred on the 9th day. The only known methods of avoiding embolism and thromboses are more or less theoretical. Foods capable of increasing the coagulability of the blood (this favoring thromboses) should be avoided, such as milk, fleshy foods and substances rich in gelatin and alkaline earths. The circulation should be stimulated by allowing freedom of movements in bed. In this last regard the Mayos, Murphy, Ries, Bolt, Gordon, Currier, etc., advocate as a prophylactic agent the early getting up of the patient, upon the theory that the heart contractions are less vigorous in the recumbent posture; that the residual blood from insufficient ventricular action is peculiarly liable to coagulation. All of which is in part avoided by the upright posture and physical exertion. Most important to decrease the coagulation of the blood is the administration from the start of large quantities of water by mouth or rectum, or under the skin.

Phlebitis occurred in but 5 cases, 0.7 per cent. of the whole 687 acute cases, with no fatalities. It came on on the 10th, 12th, 14th (2 cases) and 17th days respectively and lasted from 2 to 3 weeks.

Secondary abscesses have required to be opened in 18 cases, or 2.6 per cent. of all the operations for acute conditions, with a mortality of 4. 5 of these abscesses were on the left side, 4 in the pelvis, requiring vaginal section, and 3 were sub-diaphragmatic on the right side. The 14th day after the original operation was the average time that these secondary operations were performed. To be noted is the frequent absence of pain and tenderness in abscesses deep down in the pelvis.

Intestinal obstruction was a particularly fatal complication in this series. For paralytic ileus, ileostomy was performed in 12 cases with a mortality of 83 per cent. of those so treated. Except in unusual circumstances, such as, for example, where there is some doubt as to whether or not there may not exist a mechanical obstruction in association with the peritonitis, ileostomy scarcely seems worth while doing in paralytic ileus (peritonitis). Mechanical intestinal obstruction was met with in 6 cases with the high death-rate of 66 per cent. These patients were operated upon on the 6th, 10th, 11th, 15th (2 cases) and 19th days respectively after the original appendix operations. The obstructions were caused in 2 cases by the pressure of abscesses, in 2 cases by bands, and in 2 cases by kinks produced by adhesions.

Fecal fistulæ developed in 26 cases, or in 0.3 per cent. of the 687 acute operations. But 3 of these patients died, and these deaths could in no way be attributed to the fistulæ. The average day on which the fecal discharges from the wound appeared was the 4th, and the average

duration was 9 days, except in one instance, where a large patch from the cæcal wall sloughed. This was the only patient who required operation for the closure of the fistula, which, in this instance, persisted for one year despite 2 operations for its closure. The less the handling of the intestines at the time of operation, the less the liability to this uncomfortable complication. Extensive manipulations are more responsible for their development than is the pressure of rubber drainage tubes.

There were 9 patients who developed pneumonia, or 1.3 per cent. of those operated upon for acute conditions. The mortality was high, 5 deaths, or 55 per cent. of those so affected. It is more than likely that pneumonia in acute appendicitis is septic in origin, either by emboli or through the lymphatics, hence it is a serious complication.

In order of frequency of occurrence and relative mortality, the important complications after acute appendix operations range themselves as follows:

*Frequency.*

1. Secondary Abscesses, 2 per cent. of acute cases.
2. Pneumonia, 1 per cent. of acute cases.
3. Mechanical Intes. Obstruc., 0.8 per cent. of acute cases.
4. Phlebitis, 0.7 per cent. of acute cases.
5. Pulmonary Embolism, 0.5 per cent. of acute cases.
6. Fecal Fistulæ, 0.3 per cent. of acute cases.

*Mortality.*

1. Pulmonary Embolism, 75 per cent. fatal.
2. Mechanical Intestinal Obstruction, 66 per cent. fatal.
3. Pneumonia, 55 per cent. fatal.
4. Secondary Abscesses, 22 per cent. fatal.

An interesting but puzzling complication was met with in one of the fatal cases, namely, hemorrhage from the intestinal tract. The case is as follows:

Female, 42 years of age. Sick 3 days. Gangrenous appendix removed. Diffuse peritonitis. One cigarette drain. Two catgut ligatures to stump of appendix. No inversion. On the 6th day after operation, ileostomy performed through the original wound for distension and paralytic ileus. Progressive improvement until the 16th day when, without any premonition or change in the condition of the patient, the abdominal conditions being apparently normal, there was a profuse hemorrhage which came from the interior of the intestine through the ileostomy opening. This hemorrhage was repeated in large amount without apparent cause on the next day and again on the succeeding day, which latter was fatal. No autopsy.

Post-operative stomach and intestinal hemorrhages after appendicitis operations are discussed by Schwalbach (*Deut. Zeit. für Chir.*, Bd. 95, H. 1-5, p. 141), who collected 30 cases, of whom 17 died as a result. His conclusions are: The stomach and intestinal hemorrhages after appendix operations represent an infrequent complication. Its occurrence in children is especially frequent (one-third) and in men more often than in women. The pathological-anatomical findings consist in hemorrhages, erosions and ulcerations in the stomach and intestines. The origin of these is to be referred to thromboses in the venous and arterial circulatory systems of the omentum and

mesentery. The prognosis is serious and the treatment symptomatic.

The remaining complications may be seen from the table and require no comment.

TABLE NO. 6.—COMPLICATIONS IN ACUTE CASES.

	Total number of cases	Recovered	Died	Per cent. of occurrence in 687 acute ops.	Mortality per cent. in each complic.
Diphtheria.....	1	0	1		
Quinsy.....	1	1	0		
Parotitis, Double.....	1	1	0		
Pregnancy.....	6	4	2		
Phlebitis.....	5	5	0	0.72	
Pulmonary Embolism.....	4	1	3	0.58	75.0
Secondary Abscesses Open'd	18	14	4	2.6	22.2
Ileostomy for Paralytic Ileus.	12	2	10		83.3
Mechanical Intes. Obstruc..	6	2	4	0.87	66.6
Fecal Fistulæ.....	26	23	3	0.37	11.5
Pylephlebitis.....	1	0	1		
Pneumonia.....	9	4	5	1.3	55.5
Pleurisy.....	4	2	2		
Abscess of Lung (following Pneumonia).....	1	0	1		
Acute Pericarditis.....	1	0	1		
Septic Infarcts of Lung and Liver.....	1	0	1		
Delirium Tremens.....	2	2	0		
Hemorrhage from Intestine.	1	0	1		

*Results of Cultures and Smears.* (See Table No. 7.)

Few conclusions can be drawn from these in our series. Prior to 1908, tube cultures alone were taken of the peritoneal exudates, resulting in the majority of cases in a pure growth of *B. coli*. This was inaccurate, because the *B. coli* readily overgrows and destroys less vigorous organisms. Since the latter part of 1907, smears in addition to tube cultures, have been taken at the time of operation. Examination of these has shown a greater number with a greater variety of mixed infections than with the cultures alone (see Table No. 7). Probably the vast majority of appendiceal inflammations are due to mixed infections (Welch). In order that the various forms should be properly isolated it would be necessary to make careful plate cultures at the time of operation, and also cultures under anærobic conditions. Adami says that it is likely, also, that during life, just as in tube cultures, the same destruction of the weaker organisms by the *B. coli* takes place, so that the culture methods may reveal only a single germ when the disease has really been brought about by several.

In one fatal case in our series smears and tube cultures of the peritoneal exudate showed streptococci and *B. coli* whereas a blood culture in the same case revealed a pure growth of staphylococcus aureus. In a second fatal case a pure growth of *B. coli* was obtained in blood culture, and in a third fatal case a pure growth of streptococci. In each of these two latter cases cultures from the peritoneal exudates gave a single organism corresponding to that in the blood.

A number of our earlier cultures were sterile, due to faulty technique in that the swab was dipped in the exudate without coming in contact with the intestinal serosa itself. A given exudate may itself contain few germs, while its enclosing walls contain myriads of them, clinging to or engaged in the fibrinous exudate, covering the serous surfaces. Hence the swab should always be brushed against the intestinal walls. The same statement applies to the knee joint, in which the free exudate may be found sterile (*e. g.*: by aspiration), whereas could a culture be obtained from rubbing the synovial membrane itself, some organism would be obtained.

In Kelly's 400 cases the *B. coli* was present in 92 per cent. In this series of 288 cases it was found alone or in combination (see Table No. 7), in 82 per cent. (236 cases). The streptococcus (alone or in combination) was obtained in 30 per cent. (89 cases). All other organisms but these two seem to play but a subordinate rôle in our series so far as numbers are concerned, for the *B. pyocyaneus* was present in but 9 cases, the pneumococcus in but 12 and the staphylococcus in 12.

With such a mixture of infections as our table indicates, it can be imagined how little good treatment by vaccines or antisera would be likely to accomplish in peritonitis of appendiceal origin, or, for that matter, in any perforative lesion of the intestinal canal.

TABLE VII.—RESULTS OF CULTURES AND SMEARS.

Organism	No. of cases	Percent. of frequency	Mortality No. cases	Percent. of mortality
Colon.....	165	57	17	10.3
Colon and pyocyaneus.....	4	1.4	2	50.0
Colon and staphylococci.....	5	1.7	1	20.0
Colon and pneumococci.....	6	2.1	1	16.6
Colon and streptococci.....	55	19	10	18.8
Colon and <i>B. mucosus</i> .....	4	1.4	1	25.0
Colon strep. and staphylococci.....	2	0.7	1	50.0
Colon strep. and pneumococci.....	1	0.3	1	100.0
Colon strep. and pyocyaneus.....	3	1.0	1	33.3
Colon strep. and bac. ærog. capsul.....	1	0.3	1	100.0
Streptococci.....	24	8.3	4	16.6
Strep. and bac. mucosus.....	1	0.3	1	100.0
Strep. staph. and pneumococci.....	1	0.3	1	100.0
Strep. and pneumococci.....	1	0.3	1	100.0
Pneumococci.....	3	1.0	1	33.3
Pyocyaneus.....	2	0.7	1	50.0
Bac. mucosus.....	5	1.7	1	20.0
Staphylococcus albus.....	4	1.4	1	25.0
Paracolon.....	1	0.3	1	100.0
Total.....	288	100.0	39	13.5

REMOVAL OF THE APPENDIX IN CONJUNCTION WITH OTHER PROCEDURES.

It is not my purpose to discuss to any extent the question of whether the appendix should be removed, when accessible, in case the abdomen is opened for the relief of some other pathological condition, or whether it should be left. The main argument advanced against doing so is that it will increase the mortality. This is not shown

in the 212 operations performed in the Presbyterian Hospital during the years 1906, 1907, 1908 and 1909, in which the appendices were removed in association with other primary procedures, the appendectomies being entirely secondary. I have seen no list of such operations to prove that the removal of the appendices will prejudice recovery.

List of procedures in addition to appendectomy:

Broad Ligament Cyst.....	3 cases
Ovarian Cysts.....	32 "
Uterine Fibroids, <i>i. e.</i> :	
Hysterectomy.....	19 "
Myomectomy.....	13 "
Myomectomy with radical cure inguinal hernia.....	1 case
Ruptured Extrauterine Pregnancy.....	2 cases
Ventrosuspension in some form.....	15 "
Ventrosuspension with Perineorrhaphy.....	2 "
Ventrosuspension with Hemorrhoids.....	1 case
Perineorrhaphy.....	2 cases
Perineorrhaphy Trachelorrhaphy.....	1 case
Perineorrhaphy Trachelorrhaphy and Ventrosuspension.....	2 cases
Bilateral Trachelorrhaphy.....	1 case
Endometritis.....	4 cases
Salpingitis.....	26 "
Pyosalpinx, single and double.....	30 "
Pelvic Peritonitis.....	5 "
Pneumococcus Peritonitis.....	1 case
Gonorrhœal Peritonitis.....	1 "
Pelvic Hematocele.....	1 "
Chronic Pancreatitis.....	1 "
Cholecystostomy for Calculus.....	1 "
Cholecystostomy and Choledochotomy.....	1 "
Freeing adhesions about Pylorus.....	2 cases
Exploratory Gastrotomy for Ulcer.....	1 case
Prolapsed Liver and Adherent Omentum.....	1 "
Tuberculous Caecum.....	2 cases
Splitting Capsule of Kidney.....	1 case
Persistent Kidney Sinus (Appendix in Sinus).....	1 "
Nephropexy.....	18 cases
Nephropexy with Ventrosuspension.....	1 case
Ureteral Calculus.....	1 "
Inguinal Hernia (appendix as content).....	3 cases
Double Inguinal Hernia.....	1 case
Single Inguinal Hernia.....	5 cases
Ventral Hernia.....	2 "
Double Femoral Herniæ.....	1 case
Reduction of Intussusception.....	2 cases
Suppurative, Ulcerative Colitis, only fatal case.....	1 case
Bullet wound, Suture of Intestinal Perforations.....	1 "
Hemorrhoids.....	3 cases

The only fatal case in this list was one in which there was an intense suppurative, ulcerative colitis (autopsy) in which a cæcostomy was performed in addition to the removal of the appendix.

CONDITIONS SIMULATING APPENDICITIS.\*

By A. B. JOHNSON, M.D.  
NEW YORK.

THE cardinal signs and symptoms of acute appendicitis may be grouped under five heads:

1. Abdominal pain.
2. Nausea and vomiting.
3. Tenderness and rigidity of the abdominal wall.

\* Read at the annual meeting of the Medical Society of the State of New York, January 26, 1910.

4. Elevation of temperature and acceleration of the pulse rate.

5. Inflammatory leucocytosis, *i. e.*, with a relative increase in the polymorphonuclear cells.

In fairly acute inflammations of the vermiform appendix these are present in all but a very small number of cases. Murphy placed much diagnostic value on their occurrence in the above order, and wrote, that "When that order varies I always question the diagnosis."

In subacute, chronic and recurrent cases the signs and symptoms vary so much as almost to defy classification.

A large number of conditions may simulate appendicitis merely; to enumerate them all would try your patience.

In 1902, Spellissy, published in the *Annals of Surgery* a paper entitled "Abscesses in the Right Iliac Region, and Other Lesions not of Gynæcologic or Appendiceal Origin Mistaken for Appendicitis." With reports of one hundred and ninety-four cases, with lesions of twenty varieties of structure and sixty-eight species of lesion, not one of the cases of appendical origin, and all so mistaken; seven cases hitherto unreported.

He grouped the cases under twenty general heads on anatomical grounds as follows:

I. *Bones and Joints.*

1. Vertebrae, Tuberculous, Osteitis.
2. Sacrum and Ilium, Tuberculous Osteitis.
3. Ilium and Femur, Tuberculous Osteitis.

II. *Lesions of Muscles.*

1. Iliacus, Myositis.
2. Psoas, Myositis.
3. External and Internal Oblique, Myositis.
4. Abdominal, Myositis.

III. *Nerves.*

1. Ilio-Hypogastric and Inguinal, Neuralgia.
2. Lumbo-Abdominal, Neuralgia.
3. Sympathetic, Neuralgia, Pneumonia, Pleurisy.
4. Hysteria.

IV. *Glands.*

1. Precæcal, Adenitis.
2. Retrocolic, Adenitis.
3. Retroperitoneal, Adenitis.
4. Abdominal, Adenitis, Syphilitic.
5. Tonsillitis.

V. *Peritoneum.*

1. General, Serositis.
2. Omental, Peritonitis.
3. Tuberculous, Peritonitis.

VI. *Vestiges and Diverticula.*

1. Vitello-Intestinal, Infection and Abscess.
2. Testicular Funicular, Infection and Abscess.
3. Meckel's, with Obstruction.

VII. *Colon.*

1. Impaction.
2. Perforation following Impaction.
3. Perforation from Foreign Body.
4. Malignant Disease, Carcinoma.

VIII. *Cecum.*

1. Foreign Body, Orange Pulp.
2. Enteroliths.
3. Intussusception, Ileocolonic.
4. Ulceration, Perforative. (Tuberculous or other.)
5. Perforation and Malignant Disease.
6. Tumors, Fibromyoma, Carcinoma, Sarcoma.

IX. *Ileum.*

1. Foreign Body, Piece of Bone.
2. Lead Ileus.
3. Acute Inflammation with Localized Peritonitis.
4. Chronic Inflammation with adhesions.
5. Perforation.
6. Typhoidal Ulceration of Peyer's Patch.
7. Malignant Disease, Soft Sarcoma, Lymphosarcoma.

X. *Duodenum.*

1. Perforative Ulceration.

XI. *Stomach.*

1. Perforative Ulceration.
2. Gangrenous Polyp.

XII. *Abdominal Cavity.*

1. Foreign Body, Ligature.

XIII. *Hernia.*

1. Properitoneal, Littré Variety.
2. Into Fossa Duodenojejunalis of Treves.

XIV. *Spleen.*

1. Splenitis.

XV. *Pancreas.*

1. Pancreatitis.

XVI. *Kidney.*

1. Floating Kidney.
2. Hydronephrosis.
3. Pyonephrosis.
4. Perinephric Abscess.
5. Calculus.

XVII. *Ureter.*

1. Abscess.
2. Gonorrhœal Urethritis.
3. Calculus.

XVIII. *Prostate.*

1. Gonorrhœal Inflammation.
2. Acute Epididymitis.

XIX. *Liver.*

1. Subhepatic Abscess.

XX. *Gall-Bladder and Ducts.*

1. Dilatation.
2. Rupture.
3. Cholecystitis.
4. Empyema.
5. Cholelithiasis.
6. Cholelithiasis and Dropsy.
7. Cholelithiasis and Cystitis.
8. Cholelithiasis and Empyema.
9. Cholelithiasis, Empyema, and Abdominal Abscess.
10. Gall-Stones in and Obstructing the Intestines.

To this already formidable list other conditions may be added.

*Under Joints*—Rheumatoid Arthritis of the Spine.

*Under Nerves*—The abdominal crises of *Tabes Dorsalis*.

Oddly enough, in the course of *tabes*, acute appendicitis has been observed to run its course, even to perforation and the formation and rupture of an abscess, or of diffuse peritonitis, with little or no pain and very few local evidences of an acute inflammatory process.

*Under Kidney*,—may be mentioned, Pyogenic Infection of a Congenitally misplaced kidney. I have seen two cases in which this condition mimicked appendicitis very closely.

*In the Female*, when the appendix and the appendages of the right side are both infected a differential diagnosis may be difficult or impossible.

I have found difficulty in differentiating the following conditions from appendicitis.

a. Acute gonorrhœal right sided salpingitis with leakage of gonorrhœal pus into the abdominal cavity, notably in very young subjects, when smears from the external genitals and cervix were negative for the gonococcus.

b. Rupture of a pyosalpinx, or of a tubo ovarian abscess.

c. Cases of salpingitis and pelvic peritonitis in which the appendix was adherent to or included in the inflammatory mass, though not itself primarily diseased.

#### *Tubal Pregnancy.*

a. Immediately following rupture.

b. As the result of putrid decomposition of the effused blood.

I have seen very good surgeons mistake a ruptured tubal pregnancy for appendicitis when the patients have been unmarried and have withheld the true history of the conditions precedent.

In one case seen a few months ago, with an imperfect history, a large tender mass occupied the right side of the pelvis and the right iliac fossa. The patient was markedly septic. A large, walled off appendical abscess was thought to be present. I operated and found an ancient ruptured tubal pregnancy upon the right side, with a large putrid blood clot, occupying the right iliac fossa and the pelvis.

Among the conditions not mentioned in Spellissy's list which may be mistaken for acute appendicitis are also the following:

1. Ovarian cyst strangulated by torsion of the pedicle.

2. Acute catarrhal enteritis.

3. Thrombosis and embolism of the mesenteric vessels.

4. Typhoid fever in the early days of the disease.

5. Volvulus.

6. Diverticulitis of the cecum or sigmoid.

7. Torsion of the omentum.

8. Cryptorchidism with orchitis or epididymitis.

9. Internal or external herniæ incarcerated or strangulated, notably in retro-peritoneal pouches or in the cecal peritoneal pouches.

10. Inflammation of the vas deferens in cases of gonorrhœa before the epididymis is involved.

11. Any form of acute intestinal obstruction by strangulation, more rarely by obturation.

12. General purulent peritonitis in its advanced stages from any cause other than appendicitis.

13. Pneumonia with diaphragmatic pleurisy.

A diagnosis of chronic or recurrent appendicitis is sometimes made in

1. Conditions associated with enteroptosis.

2. Cases of neurasthenia usually associated with constipation.

3. Stone in the pelvis of the right kidney or in the right ureter without marked urinary changes is, I believe, very often diagnosed as and operated upon for appendicitis of the chronic, subacute, or recurrent type.

A number of such instances have come under my notice and other surgeons inform me that their experience has been similar. The appendix is removed without benefit and the patient is not relieved until the stone passed or is discovered and extracted.

Such a case occurred a few days since in the service of Doctor Frank Hartley, at the New York Hospital. The patient had been operated upon a year before for appendicitis without benefit. The X-rays showed clearly the shadow of a stone in the pelvis of the right kidney. It was removed by Doctor Hartley.

This error is to be avoided by the use of the X-rays, by careful examination of the urine for *microscopic* quantities of blood, and by the passage and radiography in situ, of styletted ureteral catheters.

In my own experience perforated ulcers of the stomach and duodenum have very rarely been mistaken for appendicitis when seen early, thus, in my service at the New York Hospital during the past six months, ten cases of perforated ulcer of the stomach at or near the pylorus have been cared for. All were received soon after the perforation occurred. In all a correct diagnosis was made. One refused operation and the diagnosis was confirmed at autopsy. Nine were operated upon either by my associate, Doctor J. M. Hitzrot, or by myself, eight recovered and left the hospital well. One had been drunk for three weeks and was in bad general condition. Upon the night of the second day following the operation, he arose from bed, drank at least a quart of water, burst open his wound, permitting some coils of small intestine to protrude through the muscular incision. The condition was not recognized by the house surgeon. The coils became strangulated. I replaced them the morning following, but he died soon after. The remaining eight cases left the hospital apparently well.



In none of them were evidences of pyloric stenosis present, either in their previous histories, in the size and appearance of their stomachs, nor as evidenced by inspection and palpation of the pylorus during the operative procedures.

Interesting to note in this connection is that, not one of these ten patients had suffered from symptoms indicating serious disturbances of digestion, and much less any organic lesion of the stomach. Three had had some slight gastric discomfort enduring over a period of not more than three nor less than one week. The remaining five were as they believed in perfect health up to the sudden appearance of acute symptoms of gastric perforation. All were males, and all were seen within eight hours of the perforation.

In cases of far advanced perforation peritonitis of any origin, and with an imperfect history it will often be impossible to determine the original seat of the trouble until the abdomen is opened.

Confusion must often arise in differentiating a high placed appendix the seat of infection from other suppurative and perforative processes in the right upper quadrant of the belly, careful study of the previous history and of the early symptoms of the attack will sometimes aid in the diagnosis when other means fail.

I desire to call your attention to a group of conditions which have received but little attention from surgeons, and may lead to erroneous diagnoses and to unnecessary operations. I refer to the several types of purpura with abdominal symptoms.

Osler in the *Johns Hopkins Bulletin*, July-August, 1904, "The Surgical Importance of the Visceral Crises in the Erythema Group," called attention to the fact that abdominal pain in the erythema group occurs in

1. Colic, in angio-neurotic œdema (Quincke's Disease).
2. Colic, with simple urticaria.
3. Colic, with erythema, purpura and arthritis. (Henoch's Purpura.)
4. Colic, with erythema multiforme.
5. Colic (in which the skin lesions only appear late in the disease).

Musser, in *American Medicine*, March, 1904, wrote upon the same subject with report of cases.

Several of these cases have come under my observation and have led to diagnostic errors. I am able also to report an additional case through the kindness of Doctor Howard D. Collins, and one other has recently occurred in the medical ward of the New York Hospital.

To recall to your minds the salient clinical features of these conditions, I may say that Henoch's purpura or purpura abdominalis, first accurately observed by Henoch in 1868 and later described by him in a published report of four cases, is characterized by recurrent attacks of severe abdominal pain, often by vomiting and diarrhœa, sometimes by constipation at the begin-

ning of the attacks. Blood may be present in the vomitus or in the stools. Arthritis is a usual but not invariable accompaniment. Nephritis is common.

As pointed out in a preceding paragraph the abdominal pain may be associated with skin lesions other than purpura, and may precede the skin eruption, or the joint lesions, or both, or both skin and joint lesions may be absent. The pain may be accompanied by marked constitutional depression and by slight or moderate fever. In one of my cases the temperature was 103 degrees, pulse 120, on admission to the hospital.

The disease is one of early life, most frequent between the ages of ten to forty years, though young children may be affected. Rarely, there is but single attack, usually the attacks recur after variable intervals of weeks or months; there may be but two, or four, or five, or even more. The duration of each attack is variable; the acute symptoms rarely last more than a week.

The onset of the attack varies; in some cases headache, prostration and moderate fever are the first symptoms, in others several joints become painful and swollen, in still others the purpuric rash first appears; or, in the last and most important group for the surgeon, the attack begins with sudden, severe abdominal pain of a colicky character, sometimes referred to the epigastrium, sometimes to the umbilicus, or to one or other of the lower quadrants of the abdomen. Nausea and vomiting are common symptoms at this stage. In the more severe cases the abdomen is retracted, or distended, rigid and tender; the bowels are as a rule constipated at first, though diarrhœa may follow after several days. The stools may contain blood. Vomiting of blood is less common, a moderate rise of temperature is observed in about one-third of the cases, usually not higher than 101 degrees F. though it may be higher. The pulse is accelerated, and in severe cases may become small and feeble.

A slight leucocytosis is regularly present, though it may be marked and show distinctly the characters of inflammatory leucocytosis. Nephritis of the acute hemorrhagic type is a frequent complication.

The prognosis is better in children than in adults. In 102 cases collected by Joseph H. Pratt\* from various sources, there were eight deaths.

Without going further into a detailed description of abdominal purpura and its varieties, it is easy to understand that this disease may closely mimic an attack of acute appendicitis, and that diagnostic error and unnecessary operation may result.

This will be true especially of those cases in which the abdominal symptoms precede the joint lesions and the purpuric rash, or, when either

\* Osler's Modern Medicine.

or both of the latter are absent, or when as may happen, the purpuric, urticarial or erythematous eruption escapes the notice of the patient and surgeon. Abdominal pain, tenderness and rigidity, vomiting, fever and leucocytosis will point to an acute inflammatory lesion within the belly, to appendicitis as often as to anything else.

I will relate briefly the histories of several cases where errors of diagnosis have been made.

CASE I.—In 1906, I was called to see a married woman, aged 25, who had given birth to a healthy child without difficulty, three months before. Her recovery had been uneventful. There had been no previous history of serious illness. Twenty-four hours before I saw her she had been suddenly seized with violent abdominal pain referred to the epigastrium, followed by a single attack of vomiting, prostration, and it was thought fever.

When I saw her she looked moderately ill; her pain was now referred to the lower right quadrant of the abdomen, there was marked tenderness and rigidity in this region. Bowels constipated. Pulse, 100; temperature, 101 degrees. No blood count made. Diagnosis: Acute appendicitis. Operation in the evening of the same day. Upon opening the peritoneum, a considerable amount of blood-stained serum escaped. The cecum and ascending colon were swollen, edematous, blood red or bluish red in color. The lower three or four inches of the ileum were in the same condition, evidently a considerable subserous bloody effusion had occurred into the wall of the gut. The appendix was normal. It was, however, removed. Believing at the time, that the nutrition of the bowel was profoundly affected and that gangrene of the gut threatened, I drained the peritoneal cavity with a strand of gauze. The wound healed and the patient recovered promptly.

There were no joint symptoms nor any skin eruption at the time of operation, a purpuric rash appeared next day. I should now regard this case as one of abdominal purpura without joint lesions or skin eruption, I do not know the subsequent history of this patient.

CASE II.—The patient, a female, aged 11, entered my service in the New York Hospital, December 14, 1909. Ten hours before admission to the hospital the child had been taken ill with sudden, violent cramp-like pain in the abdomen, so that she was doubled up. She vomited, but felt no relief. Since its onset the pain had been constant and the child placed her hand over the right lower quadrant of her abdomen when asked to point out the seat of greatest intensity.

On admission to the hospital her temperature was 103 degrees, pulse, 120. She lay on her back with her knees flexed. Her abdomen was distended. Respiration, costal in type.

Upon palpation her entire abdomen was tender, tenderness most marked about one and one-half inches to the right of her umbilicus. There

was general muscular spasm and rigidity of the abdominal wall, with signs of free fluid in the flanks. General examination negative. No skin eruption. Leucocyte count 18,000, 85 per cent. polymorphonuclear cells.

A diagnosis of acute appendicitis was made and an operation was done on the same day by my associate, Doctor James M. Hitzrot. Intermuscular incision in the right iliac region. Peritoneal cavity opened; when, a quantity of clear straw colored fluid escaped. The appendix was normal. On the cecum and upon the surface of the ileum there were scattered, slightly elevated pinkish-red nodules about the size of an ordinary pin head. Appendix removed.

Twenty-four hours after the operation (about thirty-six hours after the onset) a typical purpuric eruption appeared over the legs, beginning first at the ankles, then spreading upward to just above the knees, and then appearing over the elbows and wrists. The wound healed by primary union. The patient was then transferred to the medical ward, where she developed a second attack of abdominal pain followed by a second outbreak of the purpuric rash. This second attack lasted about two weeks, when the child left the hospital apparently well.

CASE III.—Reported through the kindness of Doctor Howard D. Collins, of New York.

The patient was a man aged 24 years. Neither tuberculous nor syphilitic. Moderate alcoholic habit. Present illness began February 26, 1909, with pain in and stiffness of one knee. February 27th, he had a severe attack of abdominal pain. March 1st, very severe abdominal pain and repeated vomiting. March 2d, edema of the hands and wrists. On March 3d, hiccough was an added symptom. He had had no movement of the bowels for five days. His abdomen was distended. The edema of the hands extended to the arms, there was none of the feet. Temperature, 98.4 degrees; pulse, 92; respiration, 24.

On this day diarrhoea set in he had several loose movements containing blood and mucus. On March 4th, abdominal pain and distension continued, and hiccough. On March 5th, patient much prostrated. A general purpuric rash appeared.

On March 6th abdomen opened. A distended ecchymotic edematous and paralyzed portion of small intestine was discovered. Five inches of gut were resected. Other subserous ecchymoses were observed in different portions of the bowel. Patient recovered and left the hospital well on April 14th.

Pathological report on resected portion of the bowel: All the layers of intestine swollen and edematous. There is an exudate of polymorphonuclear leucocytes into all the coats of the bowel. The blood vessels are congested and there is cloudy swelling of their walls. None show thrombi. The epithelium of the mucous membrane is normal.

While in this case the pathological findings may not agree accurately with a purpuric eruption in the wall of the gut, nevertheless I should be inclined to place this case in the erythema group.

CASE IV.—The patient, a young woman, aged 26, married no children nor miscarriages, native of the United States was admitted to the medical ward of the New York Hospital in the service of Doctor Samuel W. Lambert, October 9, 1909.

She was said to have had a number of attacks of malarial fever. An attack during each summer for seven years. The patient's mental condition was so dull that it was difficult to obtain any clear statement in regard to the duration and onset of her present illness. She is said to have had gastric disturbances accompanied by vomiting from time to time for a number of months. Chief complaints: Nosebleed, vomiting, weakness and abdominal pain. The nosebleed has occurred at intervals during the past week. A purpuric eruption had been observed upon various parts of the body for two weeks. The duration of the abdominal pain had been several days.

She was a woman of small, slight frame, fairly well nourished. The color of her skin was pale, with a yellowish tinge. Mucous membranes pale. The conjunctivæ showed several purpuric spots. The tongue was coated. The mucous membrane of the mouth showed several purpuric spots. There was clotted blood in the left nostril. Nothing of much significance noted in regard to the heart and lungs. Breathing thoracic.

Abdomen prominent, tympanitic and tense, did not move with respiration. There was marked tenderness over the entire abdomen, most marked in the epigastrium and in the right and left lower quadrants. The right rectus muscle was rigid, notably over its upper half. There was shifting dullness and a fluid wave in the flanks. The liver was apparently normal in size. Pelvic examination negative.

*The Extremities*—The reflexes were normal. The hands and feet were cold. Purpuric spots were numerous on the forehead, face and hands, a few on the legs and trunk.

Upon admission pulse small and feeble, 108 beats per minute. Temperature 98.8 degrees F.

*Blood*—Hemoglobin, 44 per cent. Red cells, 2,800,000. Color index, .80. Blood examination in general shows an early stage of primary anemia. Leucocytes, 16,800. Polymorphonuclears, 79 per cent. Lymphocytes, 21 per cent.

Four days later (just before death). leucocytes, 18,000; poly's, 84 per cent.; lymphocytes, 16 per cent.

On the day of admission, as the result of an enema, the patient had a stool of dark brown fluid containing blood. During that night she vomited several times small quantities of mucus,

no blood. She had during the night slight nose-bleed. She slept scarcely at all in spite of morphine hypodermically; and complained of great pain in the abdomen. The following morning as the result of an enema she had a movement consisting of very dark brown fluid and some blood-clots. A similar bloody movement occurred on the evening of the same day. During this day she vomited at intervals dark brown fluid. Her history during the night following resembled that of the preceding night. On the following day she passed about 50 cc. of bright red blood colored urine. Nose-bleed recurred at intervals. The vomited matters had no odor.

On the third day she was very restless and vomited frequently. She became progressively weaker. Her temperature rose to 102.5 degrees, and her pulse to 124.

*Blood Culture*—One bouillion flask remained sterile 48 hours. Vomiting continued and her stools continued to contain blood as did her urine.

On the fifth day she died. The clinical diagnosis made by Doctor S. W. Lambert at the time was "general peritonitis," probably from a perforated gastric ulcer.

I had been asked by Doctor Lambert to see this patient with reference to operation upon her abdomen, but had declined to operate on the ground that the purpuric rash and the nose-bleed had preceded the symptoms of irritation of the peritoneum; and further that the general condition of the patient was so bad that I did not consider that any surgical interference was justifiable.

Doctor Lambert thought that the eruptions upon the skin, mucous membranes, etc., were an expression of a general septic process. I did not agree with this view and considered the case one of a severe form of purpura with abdominal symptoms.

No autopsy was permitted.

#### *Conclusions.*

1. A very large number of conditions may simulate appendicitis.

2. In many of them careful study of the past history and of present signs and symptoms will render a differential diagnosis possible.

3. In acute cases with an imperfect history and inability to observe the patients during the earlier hours of the disease, an accurate diagnosis may be impossible. This will be especially true:

a. Of perforating lesions of the alimentary tract other than appendicitis.  
b. Of some affections of the tube and ovary upon the right side.

c. Cases of well developed diffuse purulent peritonitis from any cause.

d. Among the erythema group, Henoch's purpura with abdominal symptoms may so exactly simulate acute appendicitis that no differential diagnosis is possible during the early hours of the disease.

## DISCUSSION OF THE SYMPOSIUM ON APPENDICITIS.

DR. EDWIN MACDONALD, Schenectady, New York: There is one point I would like to call attention to this afternoon, and that is the eighty per cent. mortality mentioned. Medical statistics are notoriously misleading, and yet when we have papers which are within the limit of error or any statistics coming from different sources, from Berlin, Germany, from all over this country, and from the Presbyterian Hospital, New York City, we must begin to take notice of them.

Within the past year we have had valuable statistics concerning appendicitis. The best of these are those prepared by a committee of the Berlin Medical Society. This committee analyzed all cases of appendicitis occurring in Berlin in the year 1907. There was a total of 6,061 cases. Of the acute cases, there were 2,705. Of the acute cases treated in the hospital, there were 2,365. Of those operated on, there were 1,344, with a mortality of 14.6 per cent. Of those not operated on, there were 1,021, with a mortality of 1.6 per cent. Those cases operated on the first day showed 0.9 per cent. mortality; those operated on the seventh day showed a mortality of seven per cent.; those operated on the third day, ten per cent. mortality, and those operated on after that time (the third day) showed a mortality of 18.8 per cent.

Dr. McWilliams this afternoon gave us nine per cent. mortality from the total number of cases operated on, those of the intermediate stage, 18 per cent. If we consider Minningham's statistics, taken from the hospital records of this country in the past two years, we have 1,582 cases, with an operative mortality of ten per cent. When we come to individual operators, let us take the statistics of John B. Deaver, who gives a mortality in the intermediate stage of 0.178 per cent. Maurice Richardson's statistics are practically the same as those of Deaver. In the statistics of Albany, from the third to the seventh days, we have a mortality of a few years ago of 19.5 per cent. No one can show me from the little experience I have had that 18.8 per cent. of these cases would die if left on the Ochsner treatment. I have seen considerable of the Ochsner treatment and know its value in suitable cases.

A few years ago I read a paper in which I analyzed 1,019 cases previous to that time. Since then my associate and myself have had 274 cases. Of this number we have had five deaths, a mortality of 1.8 per cent. Those were real cases. I have eliminated those cases in which we took out the appendix incidental to other things. Of the cases in which the appendix was cicatricial those were the ones that had real appendicitis. Of these 117 were operated on during the acute stage of the disease. We had five deaths, a mortality of 4.2 per cent.

In analyzing our results some time ago I found that all our trouble had come in those cases at

about the forty-eighth hour. We tried the Ochsner treatment as near as we could. At first we could not use it, because they did not believe in it, and we had to show them its value. As I have said, our troubles come in those cases after about forty-eight hours, and we think, by making a little incision and relieving tension, we may shorten the convalescence and save our patients a prolonged stay in the hospital, the risk of sepsis, etc. All cases put on the Ochsner treatment have done well. The improvement in physical signs had been just as rapid as in cases on which we have operated, and they are well and alive today.

DR. ROBERT T. MORRIS, New York City: Dr. Park asks why there is such a variety of opinion on this subject. Because there is such a variety and kinds of appendicitis. Some of the younger men present do not remember when a diagnosis of inflammation of the lungs was commonly accepted as a diagnosis of appendicitis. Some of us remember it very well. If we see a flock of ten or eighteen quails and we shoot at the flock the chances are we won't get a bird. Why? Because we have not been thinking of a target in this matter. If you divide appendicitis cases into those of acute intrinsic infection, extrinsic infection, fibroid degeneration, and appendicitis occurring with congestion of some of the organs, if you fire at all of these conditions the chances are you will not hit one. You have to think of a target in this matter.

I want to say a few words in reference to appendicitis in children. We have in children the ABC of appendicitis diagnosis, namely, AA, acute attack, CC, colic and constipation.

With regard to pneumonia, there is no doubt most of us have confounded this disease with appendicitis at times. I have. Here a question comes up: if there is hyperesthesia at the site of the left group of lumbar ganglia, it is to be considered as an important diagnostic point. With pneumonia in the first stage, so far as other symptoms of this disease have developed, if there is no hypersensitiveness on deep pressure at the site of the right group of lumbar ganglia, look to something else than the appendix or the irritation. In tubercular peritonitis in children there is occasionally sufficient excuse for operating anyway. I believe in making an accurate diagnosis before operating, if it is possible to do so, and not in operating and getting an object lesson after operating. With tubercular peritonitis we are justified in clearing up the matter by operation, and in some of these cases, as Dr. Dowd says, we may find appendicitis.

In cases of coxitis I have not worked up the point in reference to tenderness of the right group of lumbar ganglia, although I believe that is important.

Dr. Brewer spoke of the blood count as misleading in a great many cases of appendicitis of sudden onset. The blood count is apt to be misleading in these cases of acute infection. Why?

A strong athletic foot-ball player, or oarsman, will get a protective leucocytosis when he is very little in the air. That being the case, what will happen to a poor, weak patient without natural resistance? It takes a great deal of infection to get up any sort of protective hyperleucocytosis. and in some of these cases of appendicitis of sudden onset, with gangrene and perforation, the patient is not able to manufacture phagocytes and opsonins; the patient cannot manufacture the signs which the blood examiner wishes. He has not the power to put out the product the blood examiner is looking for.

I want to say a word in connection with Dr. Blake's paper. In a case of intrinsic infective appendicitis there is only one thing to do and that is to operate as soon as the diagnosis is made. Why? Because the action of bacteria lies entirely outside the limitations of our judgment. We do not know what they are going to do. Operate as soon as the diagnosis is made in that kind of appendicitis; in other kinds use your judgment. We must remember that these patients are already being operated upon. The bacteria are doing it. Who shall do the operation, the bacteria or the surgeon? That is the question to decide. Let us operate right away.

The Ochsner method is simply a preparation for operation. That is what Ochsner says. He prepares his patients by the method he has described for operation.

As to the matter of opening abscesses, the inexperienced operator had better open appendiceal abscesses, no matter if the death rate is large.

DR. A. JACOBI, New York City: I know I have only a few minutes at my disposal and it will be difficult to make myself clear, but I desire to express the great satisfaction I have had this afternoon in listening to these papers, coming from surgeons, every one of whom has proved in his paper that he is not only an operator but a thinking physician. There is not one of them that has not given us something about diagnosis or the impossibility of making a diagnosis in some cases. They have referred to those things that we general practitioners expected to hear from the masters in their profession.

As far as the remarks of Dr. Park go, we general practitioners are not quite so bad as he made us out to be. It is true, most of the busy practitioners cannot be present at the operation of the masters they call in. That is unfortunately true, but they are not to blame for what he said. We do not convince ourselves as to the actual condition of what is to be operated on. The first man who would prevent us from doing that would be the operator himself, and there are a good many reasons why they should prevent us from putting our fingers in the wound and convincing ourselves what is going on before the operator is called in.

We have had many statistics brought before us to-day. We should have statistics not only of the cases that are operated on, but of the cases

that go to the autopsy table as well as statistics of diagnosis. Dr. Brewer has been good enough to tell us that he has made fifteen or eighteen mistakes in such cases as typhlitis, cholecystitis, etc. In these cases the diagnosis was not made, not even by the masters of their science and art. If we could have statistics of mistaken diagnosis, I think it would help a great deal and it would justify the mistakes that we practitioners make. In this connection I wish to remark that an eminent New York surgeon four or five years ago read a paper on appendicitis in small children before the American Medical Association at its meeting held in Atlantic City. In that paper he came to the same conclusion as to the difficulty of diagnosis, and spoke of how we practitioners should be forgiven for our mistakes. On that occasion I reported a case in which half a dozen eminent doctors were called in consultation. I saw one of these eminent men before he was called in. The only man who insisted on operation was a physician. I did not believe we had to deal with appendicitis in this case. But there was Holt, and there was Bull. The latter was called in by the attending physician to operate. He refused because they were not sure of appendicitis. The result was the patient died and autopsy revealed a general septic perforation into the peritoneal cavity, with a large amount of pus in this cavity.

Dr. Brewer and others told us that the diagnosis is difficult. I have frequently found it so in my practice. Small children are much disposed to have appendicitis, but we should not forget that there is a great deal of difference anatomically between the small infant and the adult. A small infant, for instance, has a great many more lymph vessels and lymph ducts and lymph bodies than the adult. Moreover there is plenty of opportunity in the appendix of the small child for the accumulation of all these very small lymph bodies. The length of the appendix in a small child is about one-tenth the length of the colon in that same child. In the adult the length of the appendix is about one-twentieth the length of the colon. Moreover the shape of the appendix is more funnel-like, and in a great many cases behind this funnel there is a constriction, so that when something has taken place and there is an abnormal condition of the appendix, if there is a foreign body in the appendix in the shape of mucus, it cannot get out. There are a great many possibilities why a small child should have appendicitis.

Much more could be said on this subject. For my part I will say that if these masters in surgery who have spoken this afternoon will teach us how to make perfect diagnoses, they will not have so many opportunities for blaming us for not calling them in on time. (Laughter.) The fault is not always ours. We are sometimes told, "Why did you not call me fifteen minutes before?" Did I say fifteen minutes before? I beg pardon, I meant to say yesterday. (Laughter.) But that

is so. Let us be modest. When a man like Dr. Brewer says that it has been impossible for him in many cases to make an accurate diagnosis I think we can afford to be modest. Let us do the best we can in diagnosing appendicitis in the young as well as in the old. I do not believe there is only one road to Rome, nor do I believe there is only one method of attacking cases of appendicitis. (Applause.)

DR. WILLIAM W. SKINNER, Geneva: I wish to mention one point in the diagnosis that has helped me in a number of instances, and it is this: In the neighborhood of the infection there is a certain amount of darkening of the contents of the vein. If in a case of acute appendicitis one carefully observes the skin over the entire abdomen, especially by the aid of stretching the skin slightly in different directions to obliterate the little corrugations which render the skin partially opaque, thus increasing the transparency of the skin, it will be found over the inflamed appendix the veins are darker as compared with the veins in other regions of the abdomen. The veins which are particularly affected by this darkening are those which are found just internal to the anterior-superior spine of the ilium running upwards and slightly inwards, almost parallel with the outer border of the rectus muscle. This sign alone has enabled me many times, in the absence of definite signs of localized tenderness, rigidity and the other classical signs, to make a differential diagnosis between pelvic inflammation and inflammation of the appendix. I first observed this sign about nineteen years ago. I have called the attention of other physicians to it, who have verified it. I have found in appendix troubles it is the veins above Poupart's ligament which are chiefly darkened, while in tubal inflammation, where the trouble is below the broad ligament, the veins below Poupart's ligament on the thigh are chiefly darkened. In a good many instances I have been able to foretell before operation the fact that a pus pool had formed in Douglas's pouch in consequence of the rupture of the appendix by the beginning of this darkening of the veins on the opposite side of the body or on both sides of the body alike. It has enabled me a great many times in discovering pus pools and providing drainage in Douglas's pouch. This darkening of the veins has foretold the necessity of drainage.

In regard to the opening of localized abscesses about the appendix, is it not possible that by opening these localized abscesses we set free toxins which set fire, so to speak, to the other pus pockets which are generally found in other parts of the abdomen in cases in which localized abscesses over the appendix result?

DR. CHAS. N. DOWD, New York City: What Dr. Morris said with reference to abdominal tenderness is true, but one is sometimes misled by it in making a diagnosis of appendicitis.

With reference to the remarks of Dr. Jacobi,

I am sure I had no intention of casting any reflection on the attending physician. I take off my hat to any man or group of men who will send sixteen cases of peritonitis or appendicitis in five years sufficiently early to be operated on so that not one of them died. Such men deserve great credit and honor for their diagnostic ability.

DR. GEORGE E. BREWER, New York City: In comparing the results of treatment by operation on cases as soon as the diagnosis is made and those that are given preparatory treatment, so-called rest and starvation for a while, I think we must all remember that we are dealing with different groups of cases. The type of case that goes into a private hospital is not to be compared with the acute case that is brought into the hospital in an ambulance, because the ambulance class of patients are usually in the later stages of general peritonitis when they are brought in, and I believe, in considering the subject of appendicitis, we very often talk about entirely different groups of cases. I do not believe in many private hospitals they begin to have the type of cases we get in our large municipal hospitals where the patients are brought in by the ambulance in the middle of the night for operation. These are the advanced cases of general peritonitis. These are the cases that have been neglected. They have not had a minor operation or have not undergone a physical examination to tell whether or not they had symptoms of appendicitis or some other disease. Some of them are brought in an almost moribund condition. You cannot compare these cases with the other type of cases. Not at all. We all feel that in the great majority of cases, if they are seen fairly early, if we could get an intelligent history from them, we ought to make a diagnosis. But a great many of these patients, on account of the low order of intelligence, are not seen early. In these cases we are bound to make a certain number of mistakes. These are the cases where the symptoms are so atypical as to deceive the most elect and erudite. We should feel that in all cases of doubt, where we have to do with symptoms of intra-abdominal inflammation, it is better in the early stage to operate than to drift on when we do not know the condition that exists. Supposing we take ten cases and in one of them we make a false diagnosis and open the abdomen at an early stage, that patient is not likely to die; but suppose in the same ten cases we leave things go on from bad to worse, the results would be far more unfavorable. It seems to me, when there are progressive symptoms it is our duty to operate at the earliest possible moment.

DR. PARK (closing the discussion): Dr. Brewer has given me a clew to a remark I had in mind when I presented my paper, but did not refer to it, namely, what is our duty to these patients in regard to the advice we shall give and in practice carry out? It can be summed up in this way: When one is in doubt he should

give the patient the benefit of that doubt, and that is to operate. If one is convinced that he should not operate, he should not. When a surgeon is uncertain as to whether he should operate or not, then the case is probably one with such complications that the pathological condition is such that the best interest of the patient would be conserved by an operation. When in doubt give the patient the benefit of the doubt, and that means operation by a man of reasonable experience and skill and a professionally honest man. When such men are in doubt it is better to operate and settle the question than it is to leave it unsettled.

### THE INTERPRETATION OF A DIFFERENTIAL LEUCOCYTE COUNT.\*

By T. H. DEXTER, M.D.

THOUGH the differential count has for only a few years occupied a place of importance, yet within that time (to quote from Edward Everett Hale's "My Double and How He Undid Me") "there has been so much said, and on the whole so well said, that I need not longer occupy the time." However, there are some points that will bear repetition and emphasis. Prominent among these is the fact that in theory and in practice, at debate, and at the bed-side, there is such an intimate relation and inter-dependence between the differential and the simple white cell count that their values cannot be discussed or weighed separately. Five or six years ago one of our surgeons of at least national fame and of truly scientific bent, opened an abdomen filled with pus and then sneered at the laboratory report of leucopenia in that case. The case was almost moribund and soon died of general septic peritonitis. To-day we expect such a low white cell count, in such a case. But to-day, we also expect a high neutrophile count in the differential examination.

At that time the importance of the differential count was practically unknown and surgeons had learned little or nothing of the exceptions to the rule of leucocytosis in pus cases. In 1901-'02 I served for fourteen months as a pathological interne and made many hundred blood examinations. In this period I was called on to make only two differential counts and they were for medical cases. On most of the surgical cases admitted for operation, I had to make one or more examinations, including "red and white and hemoglobin," seldom was a white cell count called for without its companions, the red cell count and the hemoglobin estimation, never was a differential called for. To-day the interne does white cell count after white cell count without red cell or hemoglobin findings; but with practically all of these white cell counts he is required to make, also, a differential count.

In devoting some space to a discussion of the subject of this paper, "The Interpretation of a

Differential Blood Count," I shall endeavor to touch only on salient points of diagnostic value in everyday diseases, trusting that what is lacking in completeness will be compensated for by what is gained in time.

I preface a discussion of these conditions with the mention of normal white cell standards, viz:

Leucocytes, 6,000 to 10,000 per cu.

Polymorpho-nuclear, 62-70 per cent.

Small Lymphocytes, 20-30 per cent.

Large Lymphocytes, 4-8 per cent.

Eosin,  $\frac{1}{2}$ -4 per cent.

Mast Cells, 1-40 to 9-10 per cent.

Transitional (fractional).

I believe that to push the max. P. M. N. above 70 per cent. would impair the value of differential counts.

(1) *Pus Infections*.—In this class of cases a distinct increase in the percentage of polymorpho-nuclear neutrophiles is the rule. It has been claimed that in surgical cases a neutrophilia of 90 per cent. or over invariably indicates pus. My own experience has found no exception to this dictum. I desire to link with this the statement that cases of pyæmia with numerous metastatic abscesses, marked systemic reaction, and fatal termination have had a neutrophilia only a little above 80 per cent. (83-86%). These cases have had a leucocytosis of 30,000 or over. This brings us to the consideration of Gibson's line or law. Taking the stand that the percentage of neutrophiles is in direct proportion to the virulence of the infection and that the number of leucocytes is in direct proportion to the subjects power of resistance, Gibson attempts to show by chart and lines whether the infection is overcoming the resistance or the resistance is overcoming the infection. Taking, rather arbitrarily 10,000 as the normal leucocyte count and 75 per cent. as the normal neutrophile percentage, he expects, where infection and resistance are about balancing one another, to get an increase of 1 per cent. in neutrophiles for each 1,000 cell increase in leucocytes.

Where the resistance is low compared to the virulence of the infection, the leucocyte line falls below the neutrophile line and the outlook is grave. When the leucocyte line runs high and the neutrophile line low, it is taken to indicate a resistance force in excess of the invading force and the outlook is correspondingly hopeful. This is so within certain limits and is a valuable aid to prognosis, but I am led to believe that very high leucocyte counts (above 30,000) in pus cases is a very bad prognostic sign, irrespective of the neutrophile percentage. Accumulations of sterile pus, e. g.: as found in some pus tubes, and even more acute processes, if they be well walled off and giving little or no systemic reaction, may make but little change from normal in the blood picture.

(2) Whooping-cough gives, we are told, a marked lymphocytosis. But we must bear in mind that infancy and childhood present a nor-

\* Read before the Second District Branch of the Medical Society of the State of New York at Brooklyn, November 6, 1909.

mal lymphocytosis in inverse ratio to the age; so that in making our deductions we have to consider carefully the age of the child. In the adult I have frequently found that the lymphocytosis in the early stage of pertussis, if present at all, is so slight as to be of no diagnostic value. It is only in the early stage of the infection—before the whoop—that the blood picture is of much importance, and here, in adults, it not infrequently fails us.

(3) In Malaria the neutrophiles are not increased, but there is usually an increase in the percentage of lymphocytes and especially significant is the increase in the large lymphocytes. This is of no particular value in cases where the malarial plasmodium is readily demonstrated, but it is of great aid where quinine or other factors have interfered with such demonstration.

(4) The relative lymphocytosis of typhoid is of comparatively little value; it is so overshadowed in importance by the Widal reaction.

(5) Many of the skin diseases (e. g.: bullus eruption as Dermatitis Herpetiformis) show a distinct eosinophilia; but of more general interest and greater diagnostic aid is the marked eosinophilia produced by intestinal parasites. In trichiniasis with invasion of the skeletal muscles the normal  $\frac{1}{2}$  per cent. to 4 per cent. may be increased to 20 per cent., 30 per cent., 40 per cent., or even 68 per cent.

(6) In pneumonia the eosinophiles disappear until a day or two before the crisis; from then on increasing often up to five or six per cent. The prognostic importance of their reappearance needs no comment. During the active stage of the disease, neutrophiles are enormously increased, as are also the actual number of leucocytes, these often running well above 40,000 per cu. m.m. In this connection, as a point of value in differential diagnosis, it may be mentioned that gripe infections give no leucocytosis.

(7) For the interpretation of the blood picture in the primary anæmias and leukemias, I refer you to the standard text-books covering those subjects.

For such skepticism as may exist as to the value of the leucocyte and differential counts there are several reasons: In the first place, in hospitals, this work is usually a part of the unskilled labor of the most recent interne. In the second place, physicians outside the laboratory as a rule are not as well versed in this branch of their craft as they should be. Thirdly, and last, conducted under the most favorable circumstances, its signs are not always infallible or often pathognomonic. But that is no excuse for any physician to drop blood analyses from his armamentarium. He does not discard the stethoscope because it does not always discover bronchial breathing where it would seem bronchial breathing should be. While not infallible, blood work has a wonderful accuracy and it needs but little intimate knowledge to dissipate skepticism in thin air. I think it is not improbable that the

time will come when folk will have their blood examined at more or less regular periods, as they now have their teeth looked over, though not so much for the purpose of discovering latent disease, as to obtain a record of their blood standard in health.

## HEREDO-TUBERCULOSIS.\*

By J. L. ARCHAMBAULT, M.D.

COHOES, N. Y.

*Gentlemen of the Third District:*

**B**ESTOWED deservedly or not, by promotion as much as by election, possibly by election because of an established custom of promotion, the distinction of being your presiding officer at this third Annual Meeting of our District Branch, is my privilege to-day. This privilege imposes upon me a pleasure and a penalty; the pleasure of thanking you most heartily for the favor conferred and highly appreciated; the penalty of not neglecting to conform with the traditional usage of delivering a presidential address and to thus open this session, the program of which will invite and sustain your attention by its many attractive and practical features.

Still it is noteworthy that not a number in it is devoted to tuberculosis, which seems almost like a prevarication when we stop to think that this year deserves to be called in this country, more particularly in this Empire State, the crusade year against the White Plague. Thus has it impressed me that to redeem this meeting it should be the duty of the President to take up the subject. Undecided as to the aspect, not rehashed and therefore not deprived of interest, under which he could treat the question, he was fortunate enough, through some recent reading, to come across a particular point which, if confirmed by further researches, would open anew the apparently settled question that tuberculosis is exclusively *acquired* and not *inherited*.

That we should not yet give up the idea that there is such a thing as *Heredo-Tuberculosis*; in other words, that tuberculosis may be a *congenital* disease, an *intra-partum* as well as an *extra-partum* infection, appears to be fairly well substantiated by the findings of Hans Rietschel<sup>1</sup> in three cases, one of which is personal, and which he published this year. His article has just been analyzed by R. Romme<sup>2</sup> in *La Presse Médicale* of Paris. Instructive as the considerations of Rietschel and the comments of Romme have proved to me, so I trust they will be of interest to you.

The case of Rietschel reads as follows:

A woman, aged 30, in advanced phthisis, gives birth, at seven months, in the clinic of Dresden, to a living child. This child, immediately after the umbilical cord is cut off, is wrapped in a

\* Read before the Third Annual Meeting of the Third District Branch at Hudson, N. Y., October 5, 1909.

<sup>1</sup> Hans Rietschel.—*Jahrb. f. Kinderheilk.*, 1909. Vol. xx, fasc. 1, p. 62.

<sup>2</sup> *La Presse Médicale*, No. 73, September 11, 1909, p. 643.



sheet and placed in a bed distant from that of his mother. Fifteen minutes later, his toilet is proceeded with, and half an hour afterward, without having been taken back to his mother, the child is transferred to an infant-home, where he is spoon fed with woman's milk. After a few days, the mother succumbs to her phthisis. The child's growth is rather satisfactory during the first weeks, but thereafter he begins to wither away and dies at the age of five months. An autopsy discloses a generalized tuberculosis with advanced tuberculous foci in almost every organ.

Has this child succumbed to a congenital, to an hereditary tuberculosis? Or has he contracted his tuberculosis in the asylum where, however, all possible measures had been taken to save him from the Koch bacillus infection?

To aid in solving this problem, Rietschel quotes two other recent observations of Sitzenfray, where things ran a similar course: mothers in ultimate stage of tuberculosis, children taken away from their mothers from the very moment of their birth, and victims of tuberculosis, respectively at three and six months, though every effort had been made to guard them against the eventuality of a tuberculous infection. Of these three cases apparently conducted with the scrupulousness of a true experimentation, the histological and bacteriological examination of the placenta however was made only in one case; this placenta was distinctly found to be the seat of tuberculous lesions.

At first thought, it seems impossible not to assign the death of these children to a congenital tuberculosis, to an heredo-contagion of the transplacental type. In a recent work on heredo-tuberculosis, Lereboullet<sup>3</sup> states that the rapidity of evolution of tuberculosis in the infant leads one to explain, by an extra uterine contagion, the cases in which death occurs, not immediately after birth, but during the first weeks or the first months of the child's life, the child not having been separated from his tuberculous mother. But Romme remarks that in the three cases of Rietschel not only were the infants removed from their mothers with whom they had no further contact, but they were placed in such conditions as to be preserved against a tuberculous infection. These facts may thus be construed as strong arguments in favor of an hereditary, a congenital tuberculosis, contracted during *intra-uterine life*. On the other hand, to this etiology may be opposed the protracted duration of this tuberculosis, having lasted six months in one child, three months and five months respectively in the other two.

Thus, finally, in these three cases, what has been the mechanism of the tuberculous infection?

For Rietschel, this infection has most probably taken place during the *intra-partum* stage, that is, during labor, shortly before or at the very moment of the expulsion of the child.

He agrees with Gärtner that, during the uterine contractions, some villousities break loose, tear apart, and that those lacerations, in a tuberculous placenta, are likely to occur preferably at the seat of tuberculous lesions. It may then be that tubercle bacilli thus liberated enter the portal portion of the placenta and invade the organism of the child. This tuberculosis in its subsequent evolution will resemble the acquired type of tuberculosis and will be influenced by the more or less massive degree of infection. It is indeed a well known fact that, in the question of infection, the dose or amount of infectious material is of vast import. According to the views of Rietschel, the number of bacilli which may invade the fetal organism may vary in each case. Added to the individual resistance of the child, the variable proportion of invading bacilli would explain why the *intra-partum* tuberculous infection may assert its effect more or less rapidly, here in three months, there in six.

A question which seems to us very pertinent, is not raised by either Rietschel or Romme.

Is an infection of the placenta at the seat of some tuberculous lesions necessary for the transmission of the tuberculous infection from the mother's organism to that of the child? Or, contrary to this opinion of Gärtner, cannot the transmission be effected along with the multiple biologic exchanges occurring all through the *intra-partum* life from one organism to the other, by means of the blood stream, regardless of any definite local alteration?

Syphilis has forced itself upon our consideration as being hereditary, as being transmitted from mother to child from the very onset of gestation. Is it more inconsistent for the Koch bacillus to find its way from the tissues of the one into the tissues of the other than for the spirochaeta pallida? A fact certain is the extreme difficulty experienced by the bacteriologist in differentiating at times between the pathologic changes found in tissues and in deciding whether they are attributable to syphilis or to tuberculosis. Thus, if almost similar structural changes are produced, if both diseases are under the dependence of bacteria having a parallel mode of action, it does not seem unfair to expect that their pathogenesis would exhibit a similar evolution. Similarity in the action of causes leads naturally to admit similarity of results.

Rietschel does not hesitate to admit that many cases of congenital tuberculosis are really of *post-partum* infection. In his estimation, the main characteristic of congenital tuberculosis, of truly hereditary type, is the rapidity of its evolution. But, does he state, though victims of an *intra-partum* infection children are not always separated from their tuberculous mothers; and it thus happens that they may be subjected to a "massive" infection, either from their mothers or from their tuberculous surroundings, and this massive infection of a newborn organism, almost incapable of generating antibodies, may assume a fulminating course.

<sup>3</sup> Traité d'Hutinel, Paris, 1909, t. II, p. 16.

Can the rarity of placental tuberculosis be arrayed as against this view of *intra-partum* infection?

Rietschel quotes the statistics of Schmorl who found 50 per cent. of cases of tuberculous women affected with placental tuberculosis, and of Sitzenfrey, who under similar conditions, has ascertained its presence in nearly 27 per cent. of cases. These figures are much higher than those of most authors. But it must be conceded that examinations for placental tuberculosis often require very minute searches, such as very few will consent to undertake; in one case, Schmorl had to practice 2,000 slides before he could establish a diagnosis of tuberculosis. In support of his views, Rietschel has also related several instances of placental tuberculosis in which histologic examination of the organs of the fetus has demonstrated the presence of tubercle bacilli, chiefly in the capillaries of the liver, but also, at times, between the walls of the vessels and the trabeculæ of the hepatic cells. In those cases, it seemed likely that the bacillary invasion must have taken place shortly, possibly a few hours, before birth.

Such are the facts, says Romme, on which is based the theory of Rietschel regarding the *intra-partum* type of tuberculous infection. They are not numerous enough to settle the question definitely, but there is no denying that they reopen, as we said in the beginning, the controversy as to the existence or non-existence of hereditary tuberculosis. Should incontrovertible facts demonstrate in the near future that tuberculosis remains a truly inheritable disease, all our modern text-books will have to be in part revised and much of the arguments presented in our tuberculosis campaign differently countenanced.

### REMOTE SYMPTOMS FROM INTESTINAL IRRITATION IN INFANTS AND CHILDREN.\*

By C. A. FROST, M.D.  
UTICA, N. Y.

**M**Y excuse for writing on so threadbare a subject is that I am continually reminded of the importance that should be attached to anything that pertains to the abnormalities of the digestive track. In the infant especially it is the small things, easily prevented, that must be constantly corrected before a more profound pathological condition is set up. I claim nothing new, but only wish to call attention to the importance of intestinal irritation in infants, as an etiologic factor in many apparently remote symptoms, or rather, to symptoms that are not, at first sight, traced to the intestine as an etiologic source. I have jotted down a few clinical histories that, to me, bring out this point, but have not attempted to show this, by any great scientific experi-

ments; simply report my observations, and give my opinion. Dr. Holmes once said: "A man's opinions are worth more than his arguments."

Owing to the infant's delicate nervous organism, and to the fact that the abnormal conditions of the intestine are fraught with far greater danger in the child than in the adult, the study of intestinal intoxication and irritation, in any of its phases, is all important; then, too, because it is thus easily corrected, its importance is intensified. There is no doubt in my mind of the far-reaching consequences of even slight irritation in the infant's intestine, even though the local manifestation is so far removed that the intestine, as an etiologic factor, is overlooked.

*First.—The group of minor psychoses.*—We find that they occur most frequently in children who, from heredity or other causes, are of unstable nervous organization. In the minor psychoses we, almost invariably, find some form of malnutrition, with its accompanying excitability of the nervous system. Twelve cases of pica, four of pseudo-masturbation, many cases of nail biting, and numerous other so-called bad habits, including enuresis, fecal incontinence, squints, constant winking, head jerking, etc., I traced directly to some intestinal irritation, such as constipation, colitis, with their accompanying irritation, worms, etc., though, at times, treatment alone developed the fact that there was intestinal irritation. As an instance of minor psychoses: An infant was brought to me, the mother complaining that the child ate wood, biting the furniture and any wood about the house; the child was constipated and was getting nothing but milk. As it was eighteen months old I put it on a more liberal diet and the habit was soon broken. I have noted many cases of plaster eating, showing no signs of indigestion, but corrected by various alterations in the food. One was taking good Jersey milk, and though showing no other sign of the fat indigestion, the habit was stopped by a change in diet. Ofttimes there was nothing to indicate an indigestion save a general nervous irritability, but, where I found some error in diet, usually a too high proteid. Another example of an interesting case of pseudo-masturbation or thigh rubbing, accompanied by intestinal indigestion, that had been experimented upon with all sorts of infants' foods. The child, fifteen months old, was taking peptonized whole milk, had a diarrhoea and almost constant rubbing of one thigh over the other, aggravated whenever irritated. I had little hopes of stopping the habit without using some mechanical restraint and some nerve sedative, but thought best to correct the diet first. This condition had existed with more or less intensity for four months. However, one week after the corrected diet the mother reported improvement. So I waited, giving iodide of iron as a tonic. In four weeks the habit was broken. These bad habits, so called, are in all likelihood forms of hysteria and are merely the child's mani-

\* Read before the Fifth District Branch of the Medical Society of the State of New York at Watertown, N. Y., October 14, 1909.

festations of what in later life would be recognized as such. The usual forms manifested by adults we do not have in infancy. In the so-called nervous children and infants we find restless sleep, later sleep walking and talking, enuresis and delirium under slight provocation. These are referable many times, as in the case of the other bad habits, to intestinal irritation, and are corrected by thorough cleaning out of the intestine and a proper diet enforced, not prescribed, and need not be dealt with in detail. Along this line, however, I will mention a case of tetany seen through the courtesy of Dr. Fuller of Utica. The child, about four weeks old when I saw it, at birth had an acute dermatitis followed by a profuse exfoliation. This was followed by tetany of the hands, arms and legs, and temporary dyspnoea and slight cyanosis on two occasions. No marked indication of indigestion, but on examining the mother's milk, we found a large percentage of fat, and by reducing this, the symptoms disappeared. Along the line of nervous manifestations I would like to mention cyclic vomiting, of which much has been written of late, and trust I may hear to-day the experiences of others in this interesting disorder, as to the importance of intestinal indigestion as an etiologic factor. Personally, in the few cases I have seen, the attacks have come from some nervous irritant—over-exertion, eye strain, excitement, etc.,—acting on a so-called nervous temperament. This summer an attack in a little patient of mine, nine years old, was brought on apparently by a sudden change of diet of milk of too high fat percentage. I had warded off an attack for five months, though previously, for six months, they had occurred at almost the same date each month. A change to this diet of high fat brought on a severe attack of four days' duration, vomiting, but no apparent indigestion. Fat free milk was the first food retained. The profound character of this evident toxemia in these cases makes it vastly important for us to better understand whether these are pure neuroses or not. Having my attention called to the existence of albuminuria in connection with an irritated intestine I took notes of some thirty odd cases of acute and chronic intestinal diseases and examined the urine. I found casts and albumen in a few of the more severe acute cases but thought them due to the general toxic condition. The mortality was slightly greater in those with than those without albumen, but again I put this down as due to this severe toxæmia. The urine was turbid, generally due to phosphates. In the chronic cases I found a small per cent. with albumen. As pointed out by Koplik, this form of albumen, even when accompanied by casts, is a special form of nephritis and due to the great loss of fluid from the system, the toxins, being concentrated, produce a temporary irritation and not a permanent nephritis.

Carpenter, however, in the British journal of

children's diseases in October, 1907, lays rather more stress on this form of nephritis in children. To quote him: "Though some cases of infantile nephritis are undoubtedly syphilitic, others are certainly not so and it is doubtless true that interstitial nephritis may be produced by toxins other than those of syphilis, and it is possible that interstitial nephritis may thus begin in early life, being due to intestinal toxins. *Turning to the skin:* Seldom do we have an intestinal trouble in the infant without some accompanying skin irritation, but sometimes we have the skin irritation as the only symptoms and are thus led astray. Two cases of angioneurotic edema proved at first puzzling. A child, six years old, having played in the fields in the afternoon, later, while sitting at the dinner table, suddenly developed an acute edema entirely closing both eyes, the lips puffing to an abnormal size within a few minutes. The father, naturally frightened, thought the child had been poisoned in the fields. No indigestion was complained of up to this time, but very soon some pain in the abdomen developed. A dose of castor oil and rhubarb and soda mixture cleared up the case in two days. A second case similar in appearance, though not so sudden in onset with no apparent intestinal trouble, through regulating the diet, after castor oil, it disappeared. Eczema is more often due to intestinal irritation than to any other cause, I believe, not excluding rheumatic diathesis. Many of these cases will clear up with almost no medicine, if the diet is corrected. One child of three years was in such a condition that the ears seemed nearly detached; neither child nor parent had rest day or night, but was relieved in a few days and practically cured in three weeks when the diet, which was causing a diarrhoea, was corrected. In this case it was too high fat and no fruit, except bananas, which are always pernicious. I have had so many cases clear up by strict attention to the intestinal health that it seems to me to be the chief cause of eczema. I could quote many cases from my notes, but it is not necessary to go into details. Stellwagen says: "Important as this is in adults it is doubly so in the infant and child." Often is eczema due to a general debility from whatever cause. This debility may often be due to assimilative, nutritive, or nervous influence, and this neurotic eczema is most frequently due to some intestinal irritant. Intestinal parasites, both by reflex impression and direct action on the intestinal digestion seems to be an etiologic factor. The many skin affections in which an irritated intestine plays an important etiologic part may simply be mentioned; such as many of the erythemas, including erythema nodosum, urticaria, pruritis, etc.

The eye is, at times, the seat of trouble as a result of intestinal irritation. It is a common thing for us to see a conjunctivitis and sometimes a thickening of the eyelids, as a result of a

chronic diarrhœa, but this is more properly a result of the mal-nutrition resulting from an intestinal trouble.

Fournier denies the diagnostic value of keratitis as a sign of syphilis but says it is often the result of mal-nutrition, resulting from intestinal irritation.

Knies mentions the irritation of worms as producing keratitis, iritis, and cyclitis. We have also keratitis in the later stages of cholera infantum as pointed out by Knies. Intestinal disease acts as a predisposing factor because of the marked loss of fluid in profuse diarrhœa, together with a ptomain narcosis, which gives rise to an insensibility of the cornea and an imperfect movement of the lids.

Immerman reports a case of blindness and subsequent atrophy of the optic nerve after very profuse diarrhœa. Abnormal digestive processes cause anemia and their sequelæ (feeble accommodation and weakening of the external ocular muscles). *Acute pharyngitis*, as we all know, is frequently caused in children by digestive disturbances and a clearing out of an irritated intestine will most frequently clear up the throat. What is apparently a predisposition to sore throat is really a weakened digestive track and is far more wisely treated by a constant vigilance over the intestine than by protecting the throat from exposure to cold. Tonsillitis has for its chief predisposing cause debility and obstinate constipation. Among the predisposing causes of rhinitis is a neurotic diathesis and, in infancy, the nervous system is so easily disturbed, that we have to reckon with an infant as a natural neurotic and a slight irritation has a more profound affect than in the adult. A slight intestinal irritation often shows itself in a coryza without showing itself in the intestine and is relieved by treating the intestine and not the nose. In this connection I would again call attention to coryza accompanying cyclic vomiting. I have found in these cases that the attack is most frequently preceded by coryza and constipation. Sometimes this coryza acts as a danger signal and when it appears if this irritant in the intestine is removed immediately on the appearance of the coryza, the attack of vomiting is avoided.

I wish to emphasize in closing that every child is a neurotic and all the symptoms that may occur from an upset equilibrium may be produced by a very slight intestinal irritant, as the infant's intestine is the mainspring of its well-being, and the resulting remote irritations are far more profound than in the adult.

### ALUMNI DINNER, MT. SINAI HOSPITAL, FEBRUARY 26, 1910.

NEW YORK, December 27, 1910.

Dr. Algernon T. Bristow, Editor *New York State Journal of Medicine*, 17 West Forty-third Street:

DEAR DOCTOR.—I herewith comply with your request for some data bearing on the banquet tendered to Dr.

A. Jacobi in celebration of his fifty years of service at the Mount Sinai Hospital:

On Saturday evening, February 26th, 1910, under the auspice of the Associated Alumni of the Mount Sinai Hospital, the occasion of their fifteenth annual reunion, 175 guests assembled in the handsomely decorated banquet hall of the Knickerbocker Hotel in honor of Dr. A. Jacobi's half century of service to Mount Sinai Hospital.

To commemorate this golden jubilee of hospital service a gold medallion portraying Dr. Jacobi was presented to him. Dr. Martin W. Ware, the President of the Association, made the salutatory address and Dr. Charles H. May tendered the medallion to Dr. A. Jacobi, and in his presentation speech said: "You would be called the Grand Old Man of Medicine were it not for the fact that you absolutely refuse to grow old." Dr. John A. Wyeth, late surgeon to the hospital, and as President of the Academy, pronounced an ecomium of Dr. A. Jacobi, whereupon Dr. William H. Welch eulogized the special guest of honor, and Dr. Joseph D. Bryant extolled his civic virtues. Mr. Philip Goodhart, of the Board of Directors, in his address emphasized the signal services rendered the hospital by Dr. Jacobi during his fifty years, and Dr. A. G. Gerster paid a glowing tribute to Dr. A. Jacobi who, in his eightieth year, is yet the President of the Medical Board of the hospital. To all of these heartfelt addresses Dr. A. Jacobi warmly responded, giving a survey of his activities during these fifty years and a panoramic sketch of the evolution that medical science underwent. His concluding remarks were:

"In a long life of observation I have arrived at the conclusion that social betterment and equalizing humanitarianism both require and afford in our country more than in any other something better than a social revolution, for which I looked fifty or sixty years ago; that more, and with less sacrifice, can be accomplished by organization and evolution and co-operation."

A subscription list for replicas of the medallion was liberally indorsed and it is proposed to place replicas in the New York Academy of Medicine and in the Library of the hospital. The photo represents the obverse of the medallion. The reverse reads: "Presented, in celebration of his fifty years of service, by the Associated Alumni of Mount Sinai Hospital. MDCCCLX-MCMX. Those desirous of obtaining replicas will address Dr. Martin W. Ware.

### ADDRESS OF A. JACOBI, M.D., LL.D.,

THE proverb has it that all things come to him who waits. That I have been doing quite bravely. I have waited these sixty-three years, since I began what I have never finished,—the endless study of medicine. Fifty-nine years since I was ornamented with the outward signs of a doctor in medicine and surgery; fifty-nine years since I was the chronic recipient of the urgent offer of a solitary bench in a Prussian State Prison, which thirty-five years afterward was followed by the offer of a bench or, as they call it, chair on the platform of a Prussian University. All these fifty-nine years I have had to wait until a few days ago,—blind, deaf, and poor,—the last of my co-workers and co-sufferers, a poor socialistic tailor, Frederick Lesner by name, laid his weary old limbs that 60 years ago knew so well how to fight, to his eternal rest. I have waited fifty-seven years since the homeless refugee and embryo doctor touched the hospitable shores of this republic;

fifty-three, since I aided in the foundation of the German dispensary, and was admitted to the New York Academy of Medicine; and forty years since I got myself expelled from a big institution because I insisted upon less than one hundred per cent. of baby mortality, and upon saving a number by means of a farming-out system.

Fifty years ago,—you all remember that time, so do I,—fifty years ago I was made a member of a medical faculty in the now long-forgotten New York Medical College of East Thirteenth Street, had the opportunity of establishing the first special American pediatric professorship and clinic, and with a few enthusiastic and fairly opulent colleagues, the first genuine regular bedside instruction, in regard to which our American teaching is still mostly defective. Fifty years ago I performed my first tracheotomy in croup, which we learned from Waldemar von Roth, one of the early surgeons of the Jews' Hospital, and wrote a paper on diphtheria, the first in the Atlantic coast country; it will be fifty years to-morrow—the 27th—that I listened to the immortal Cooper Union address of Abraham Lincoln, which should be celebrated by all justice and liberty-loving sons of men; and, last but not least, in the same rich year, I was honored with a full chair in the Jews' Hospital.

Many other years and dates followed, replete with work and incidents, and successes and failures—quite often attended with disproportionate appreciations and honors, both national and international. You understand now that waiting has paid me well—for it has landed me here, on this public platform, like an Athenian exhibited and amply fed on the Prytaneum, next to our Alumni—President, the recipient of congratulations which ought to be due to Chronos the god of time. Indeed, he has shown more patience with me than with almost any other man in political or scientific, in public or private life. They are buried, the comrades of my young, and advanced, and old, though as you are good enough to prove, not lonely years. Pardon me for speaking so much of myself. As a rule, I am not *very* loquacious. But you have made the temptation to present reminiscences too inviting. I shall not do so on the occasion of my next semi-centennial.

I have enjoyed the less meritorious than lucky experience which Aristotle praises as the happiness of those who see and live with great enterprises from their incipency.

The year 1860 saw great changes in the organization of the Jews' Hospital, which then was a few years old. In the medical organization, it had, as consulting surgeons, Valentine Mott and Willard Parker; as consulting physicians, Chandler R. Gilman, William Detmold, W. Benjamin McReady, and W. Maxwell. The attending surgeons were Thomas M. Markoe, A. B. Mott, and Waldemar von Roth. The only at-

tending and resident physician was Mark Blumenthal. His advancing years are perhaps not so active, though no less, I hope, prosperous, than those of his youth. Only last year he married. May the reality and the shadow of his honeymoon never grow less.

In the reorganization of 1860, in which the former directors, Benjamin Nathan, who remained president until he was assassinated, Joseph Fatman, Lewis May, who left us only lately, and Joseph Seligman, participated,—the medical board underwent distinct changes: Mott, Parker, and Markoe remained on the consulting surgical board; A. B. Mott, Israel Moses, and Ernst Krackewizer were attending surgeons. There were no consulting physicians, for McReady was no longer relegated to the consulting out-of-the-way-ness, but became promoted to be attending, together with Ernst Schilling, A. J. Henriques and—through the kindness, I believe, of Naphthali Rosenfeld—A. Jacobi. S. Teller became House Physician and Surgeon.

In 1860 we admitted 269 patients. We nursed thirty-four, all we could accommodate, on January 1, 1861. On the same date the treasurer had on hand \$1,624.80. A ball and banquet realized the handsome sum of \$9,800, which explains "the large sum of \$1,624.80 in the hands of the treasurer." I hesitate to mention these large sums, being afraid of rousing the jealousy of our present treasurer and directors, who are in duty bound always to be poor and to plead poverty. (By the way, the fair of 1876, resulted in \$115,229, also eight cents.) The paying membership, \$5 a head, was 622, compared with 674 in 1859. It was in 1865 that I drew my first big salary in the shape of a petechial typhus, from which I recovered after public prayers had been offered by some good friendly ladies.

In the course of a few years Benjamin Raphael and Lothar Voss were added to the attending surgical staff of what has been since 1866 the Mount Sinai, no longer the Jews' Hospital. Samuel R. Percy and Charles A. Budd were added to the medical staff, to fill a few vacancies. In 1868, Herman Guleke took the place of Voss, who returned to Europe; Alfred L. Loomis and Max Herzog joined the medical, Isidore Stachelberg the surgical staff; Julius Rudisch filled the place of Dr. Teller who had died. You know him, I dare say, those of you who know a little medicine and no chemistry.

In the year 1875, Ernst Krackowizer died, September 23d. The annual report says of him: "His place has not yet been and cannot easily be filled." It has not been nor will it ever be filled. The place of Ernst Krackowizer, like that of Carl Schurz, can never be filled again. It is my grief that on this occasion, on which I should be so glad to make you better acquainted with your predecessors in the Mount Sinai Army, I must keep silent.

1876 furnished no changes except the name of

Aloys Schapringer as the successor of J. Rudisch, and a staff of eight dispensary attendants in four services—the internal, external, children, and women. Paul F. Munde was destined to raise the latter and himself to an enviable distinction.

1877 added Gustav Langmann to the medical side; John J. Darby, Daniel M. Stimson, and J. Adler to the surgical side, and a new gynæcological service under Emil Noeggerath, David Froehlich became admitting physician. A few acquaintances at that time I want you to recognize. D. K. Davison was senior resident, Alfred Meyer junior resident physician; Herman Hardrich senior and Benson M. Feldman junior resident surgeon. With Alfred Meyer you have made acquaintance. You need not be told that he is the unselfish, altruistic worker, whose public-spirited labor, which cost him a year of his life, was the sole cause of giving us the instructive tuberculosis exhibition of last year.

But here I shall close my brief reminiscences, for the very time I speak of is too near the present—only a mere trifle of one-third of a century, filled with mostly constant, usually appropriate, during the last two decades faultless and beneficent endeavors on the part of our lay directors, and constant and unselfish services of a medical staff, many of whom have been rewarded by national or international renown.

I wonder whether all of you love to trace our present conditions back to their foundations. I venture to direct your eyes to what took place on the field of medicine in the very year in which I was permitted to join the attending staff of your hospital.

In the year 1860 Virchow's cellular pathology was only two years old; Giovanni Battista Amici constructed the first spectral apparatus which permitted the examination of a ray of light in the same direction in which it enters. With its aid Kirchhof and Robert Wilhelm Bunsen discovered the two blue lines of cæsium and the two red lines of rubidium. Paul Bert of Paris, studied the influence on the organism of atmospheric pressure, with conservative studies of caisson disease. Carl Sigmund Franz Credé in Berlin taught his method to remove the placenta. Sylvester Graham prepared bread without fermentation, from coarsely ground cereals. Herman von Helmholtz, following Wheatstone's suggestion, studied the nature of vowels and consonants. Willy Kühne, of Heidelberg, explained the nature of the albumin of the muscle. Adolph Kussmaul invented the stomach pump. Henri Le Grand du Saulle added to our knowledge of psychiatry and forensic psychotherapy. Lemaire discovered the property of carbolic acid and its significance as an agent in wound infections. Charles Locock found the efficacy of potassium bromide in epilepsy. Louis Pasteur filtered air through explosive cotton and col-

lected germs suspended in air for microscopical examination by dissolving the same cotton in ether-alcohol. He also destroyed the old theory of spontaneous generation. Besides he explained fermentation by the action of living cells. Nicolai Ivanowitch Pirogoff published his exarticulation of the foot and his anatomical researches instituted on frozen bodies. Bernhard Sigismund Schultze, my life-long friend, furnished a new method of the resuscitation of the asphytic newborn. Ludwig Türck perfected laryngoscopy for diagnostic and operative purposes. Friederich Albert Zenker discovered trichina spiralis as the cause of violent epidemics.

A few months afterward Ernst Brand resumed Currie's practice of 1798 of hydropathy in typhoid fever. Paul Broca found the seat of speech in the third anterior convolution of the left hemisphere. Etienne Jules Marey invented his cardiograph. Max von Pettenkofer made his famous experiments on nutrition; and Ludwig Traube furnished the physiological explanation of the action of digitalis in diseases of the heart. All this in very little more than that one year 1860.

I know of no year more filled with mental energy and more conspicuous by its epoch-making results than that very beginning of this last half century. For more, we had to wait for Pasteur, for Lister, for Robert Koch, and his initiation of the period not of germ theory but of germ facts, of sera, and of antitoxins; also it must be said, for the exaggerations and illusions of misguided onotherapy. During all that time in the Jews' Hospital of West 28th Street and in the Mount Sinai of Lexington Avenue and of 100th Street modern medicine, such as it was and progressed, was practiced by many distinguished experts and teachers; intelligent and attentive laymen demonstrated their zeal and their anxiety to learn and practice what they were not originally taught; and the poor thousands were restored to health if barely possible, and taught—many involuntarily—the rudiments of hygiene, diet and common sense. There is an exhibition of what energy, enlightenment, riches, altruism and medical proficiency may furnish in the way of beneficence and progress—a great lesson for the future. There is only one thing that is wanting. Under our social conditions, the care and cure of a disease is not perfect, unless those thousands of men, women and children, who, for want of space, cannot remain in the hospital until they are entirely cured, are given a place where they can regain their full health and ability to work. You physicians know that best. Men have to leave you while feeble, anæmic, with no vitality, unable to make a living for themselves and their families, or return to you with a relapse or a new disease which they cannot withstand. Women suffer even more than

they, if only for the reason that they have more conscientiousness, more unselfishness, and more anxiety to serve. That is why there are so many life-long invalids amongst them, so many victims of rash, unnecessary or criminal operations, so many neglected children, so much dissatisfaction and friction in family life. Even the future establishment of a maternity division in our hospital will miss its aim unless a new mother will be given at least a month, still better two months, for a partial restoration of her former self. You all see how much we are behind our necessities. New York has only a few hundred beds for convalescents, while ten thousand are demanded. There is no country like ours, endowed not only with wealth, but with generosity. Making and giving away money supplement one another. What we are defective in is a thoughtful system. Indeed, in a long life of observation, I have arrived at the conclusion that social betterment and equalizing humanitarianism both require and afford in our country more than in any other, something better than a social revolution, for which I looked fifty or sixty years ago; that more, and with less sacrifice, can and will be accomplished by organization and evolution, and co-operation. Nobody appears to feel that more instinctively than your trustees who are, I understand, looking out for the foundation of convalescent hospitals. Thus they think and act not only as trustees of your great institution, as it was, but instinctively as the fiduciaries of those in need and ailment.

All this period, which extends over generations, I have, amongst other hobbies, attended to the study and practice and teaching of medicine. What I may have succeeded in I cannot tell. You are showing me a warm interest to-night, and have done so repeatedly. That is why I may suppose you can tell better than I. Again I have to mention myself, but you have tempted me, and by having tempted me, must pardon me. But surely this is not the place nor the time to speak of what I may have produced that was new, or presented from a new point of view, or suggested. Some things may have been underestimated, many overestimated. What I, however, do not underestimate is this, that when sometimes here, or always in distant parts, I attend a public meeting, groups of young and old men, smooth-faced or wrinkled, curly-haired or bald, dark or white, will present themselves as my former pupils, my heart greets them like my hand. I often express the wish that they may know more now than they knew in those far-away times. I am not a mean man; gentlemen, I wish you the same. On such occasions I recognize the fact that living in the atmosphere of young people and young ideas, and young—sometimes rather fresh—literature, I had an opportunity to remain young, surely younger than perhaps to-day; young even not only with

the men, but also with progressive medicine, to which many of them have contributed. Welch, now my master, was a pupil and Bellevue assistant of mine. Mine were pupils like Gorgas, Forcheimer, Holt, Huber, Northrup, Koplik, May, Meyer, Elsner, Estes, Howland, even Ware, your own boss, and many, many more.

I trust there are many of you younger men also to shed in future new lights while standing on their and my shoulders, and, when we shall have been forgotten, will be applauded for your achievements and blessed for your benefactions. For the lot of most of us is what Homer tells: "The sun sinks and darkness rises"; or what Kussmaul erroneously predicted of himself: "Der Abend verglüht und die Nacht bricht ein. Du flimmernder Staub im Sonnenschein, Bald wirst du im Dunkel verschwunden sein."

Permanent immortality does not come to many. A certain degree, it is true, is the share of every one, for the universe never loses the imprint of any existence. Matter and force are never lost in the economy of Nature. Robert Mayer and H. Helmholtz's doctrine of their perpetuity is valid both for the material and intellectual worlds. Ponderable and imponderable powers obey the same law. What is the lesson to be derived therefrom? That all of us, both you and I, may aim at leaving some "vestiges of our creation," large or small, to live after us, never satisfied with what we have or believe we have accomplished, always willing to compare modestly our results with what others have attained, both individually and collectively; admitting our indebtedness to the past and the present; recognizing our responsibility to our science and art, our profession, and, more than all—to the community at large.

That may not be easy; it requires the ambition of unselfish exertions. That is surely true of medicine, its study, practice, and altruistic realization in the service of the commonwealth. Shakespeare ought to have applied to medicine: "Who chooses me must give and hazard all he has."

That leads me back to our Alma Mater the Mount Sinai Hospital, which we, its servants, revere, and which you obey by trying to live up to the best precepts of seventy centuries of medicine. Let the spirit which has guided the foremost of its trustees, both dead and alive, and of the most magnificent and humane of its medical leaders never wane, and the alliance between you and the great lay leaders never be disrupted. They and we have the same aims and duties. Your results need not be slow; they have not proved so in the short half-century which I have had the opportunity to observe. Another half-century some of you will look back upon greater achievements in science, in art, in humanity, in social evolution. You, with your knowledge of man expanded into that of mankind, and your

humane instincts enhanced by your interests in the common welfare which Socrates, Descartes, Kant and Gladstone proclaimed to be the domain of the doctor, may contribute much to a peaceful evolution in place of threatened revolutions. Brains and hearts should accomplish more than torrents of spilled blood.

Here is my last word and my toast: To Mount Sinai Hospital; to its founders—though dead they are alive; to its supporters and guides, past and present; to its great men of science and art; to its benefactors and its dependent and indigent beneficiaries; to its co-operation with all humanitarian efforts; to the continuance of its scientific and altruistic spirit—forevermore!

#### THE INTERNATIONAL AMERICAN CONGRESS OF MEDICINE AND HYGIENE.

BUENOS AIRES, ARGENTINE REPUBLIC, MAY 25TH, 1910.

The International American Congress of Medicine and Hygiene of 1910 in commemoration of the first centenary of the May revolution of 1810, under the patronage of His Excellency, the President of the Argentine Republic, will be held May 25th in Buenos Aires, Argentine Republic.

In order to facilitate the contribution of papers and exhibits from the United States, there has been appointed by the President of the Congress, Dr. Eliseo Cantón, and the Minister of the Argentine Republic at Washington, a Committee of Propaganda, of which Dr. Charles H. Frazier (Philadelphia, Pa.) is Chairman and Dr. Alfred Reginald Allen (Philadelphia, Pa.) is Secretary.

The Congress has been divided into nine sections, each section being represented in the United States by its Chairman in this Committee of Propaganda as follows:

Section 1.—“Biological and Fundamental Matters,” Dr. W. H. Howell, Chairman, Baltimore, Md.

Section 2.—“Medicine and Its Clinics,” Dr. George Dock, Chairman, New Orleans, La.

Section 3.—“Surgery and Its Clinics,” Dr. John M. T. Finney, Chairman, Baltimore, Md.

Section 4.—“Public Hygiene,” Dr. Alexander C. Abbott, Chairman, Philadelphia, Pa.

Section 5.—“Pharmacy and Chemistry,” Dr. David L. Edsall, Chairman, Philadelphia, Pa.

Section 6.—“Sanitary Technology,” Dr. W. P. Mason, Chairman, Troy, N. Y.

Section 7.—“Veterinary Police,” Dr. Samuel H. Gilliland, Chairman, Marietta, Pa.

Section 8.—“Dental Pathology,” Dr. George V. I. Brown, Chairman, Milwaukee, Wis.

Section 9.—“Exhibition of Hygiene,” Dr. Alexander C. Abbott, Chairman, Philadelphia, Pa.

It will not be necessary for one contributing a paper or exhibit to the Congress to be present in person. Arrangements will be made to have contributions suitably presented in the absence of the author.

The official languages of the Congress will be Spanish and English.

Members of the following professions are eligible to present papers or exhibits: Medicine, Pharmacy, Chemistry, Dentistry, Veterinary Medicine, Engineering and Architecture.

Papers may be sent direct to the Chairman of the particular section for which they are intended, or to Dr. Alfred Reginald Allen, Secretary, 111 South Twenty-first Street, Philadelphia, Pa.

## Medical Society of the State of New York.

The following letter has been sent to the Presidents and Secretaries of County Societies:

February 21, 1910.

My Dear Doctor:

At the last meeting of the Medical Society of the State of New York the House of Delegates took the following action, which was unanimously adopted:

*Resolved*, that a committee consisting of the Presidents of the Medical Society of the State of New York, and of the recent New York State Medical Association, be and hereby is appointed to consider and carry into effect a celebration to be given in honor of Dr. Abraham Jacobi on his 80th birthday.

In order that this celebration may be available to all members of the Society and oppressive to none, it is decided to give Dr. Jacobi a reception at the New York Academy of Medicine on Friday evening, May the 6th, 1910, and to present him with a substantial testimonial of appreciation.

Believing that each member of the Society will be delighted to co-operate in this purpose, thus testifying to his appreciation of, and affection for a noble character, it is proposed that each member be requested as an earnest of his willingness and desire, to subscribe one dollar to the cause and to be present on the occasion. Therefore you will kindly take the matter up at once with the members of your County Society and report promptly to the Committee of Arrangements, as it must have, at an early date, a knowledge of the fund which will be at its disposal.

Personal invitations will be issued in due time.

Respectfully submitted,

CHARLES JEWETT, Chairman,

A. T. BRISTOW,

JOSEPH D. BRYANT,

Committee of Arrangements.

J. RIDDLE COFFE,

Secretary.

## BUREAU OF PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

FOR a time a disease thought to be typhus fever, and known among the Mexican physicians as tabardillo, has been prevalent on the plateaus of certain parts of Mexico. There has been some question as to whether this disease was identical with the Rocky Mountain spotted fever of Montana and Idaho.

The article appearing this week is the third one on this subject published in the Public Health Reports.

The first note (Dec. 10, 1909) reports the finding by inoculation into monkeys and guinea pigs that the typhus fever of Mexico is an entirely distinct disease from Rocky Mountain spotted fever. In addition to the differences found by animal experimentation, these two diseases differ clinically.

The second note (Dec. 24, 1909) reports the experimental production of fever by the inoculation of blood from cases of human tabardillo in two species of monkeys, the *Macacus rhesus* and the *Cebus capuchinus*. It was also found that cultures made with blood from human cases of the disease gave negative results in every instance in ordinary media.



In the present paper the authors report the results of the testing of the immunity of the animals reported in the first note. When tested for immunity three or four weeks after the attack of experimental fever these animals were immune to an injection of virulent blood from cases of human tabardillo; whereas, the inoculation of 6 c.c. of similar blood in a previously untreated monkey was sufficient to produce a typical febrile reaction after an incubation period of eight days.

Filtration experiments showed that the cause of the disease would not pass through a Berkefeld filter, and that virulent blood when passed through such a filter ceased to produce the disease in monkeys. The authors believe that the disease is not ordinarily contagious, but that there is strong evidence that the disease is spread from man to man by the body louse.

### CORRESPONDENCE.

*To the Editor of the New York State Medical Journal:*

There is one great cause for the lack of income to the doctor, namely, medical charity. Hospitals and clinics solicit our services for charity, when a large number of their patients pay for their treatment and are able to pay a doctor. These institutions vie with each other in the erection of costly buildings and equipments to entice the patronage of the people. Practically no discrimination is made between the poor and those able to pay, especially in the clinic. The demand of a fee by the doctor, from a patient who is well able to pay in such an institution, is equivalent to handing in his resignation. The facilities of dispensaries and clinics, the attendance of nurses and doctors at all times, appeals to the patient as being a more fit place for the treatment of his ailment than the doctor's office, where he has to pay. In common phrase, "He gets a better show for his money."

The only relief for this perversion of charitable services is the absolute supervision of all charitable institutions by the State Charities' Aid Association, whereby a person wishing charitable treatment must acquire a card of admission from one of its branches, and on presenting it at a clinic or hospital would be admitted for treatment. By this means all persons needing charitable aid would be treated and would keep out those who are able to pay a physician for his services.

All free clinics should be abolished, except those connected with a medical college, with a charity hospital, or a hospital with an ambulance district.

This dispensary evil has grown in proportion with professional competition to such an extent that doctors regard each other with envy and suspicion and care little about casting reflections on the ability of each other.

With such a lack of loyalty and fraternal spirit the young physician of to-day wonders not at the encroachments on the profession of medicine by the osteopaths, oculists, quacks and charlatans.

G. S., Jr., M.D.

*To the Editor of the New York State Medical Journal:*

#### WHAT IS TO BE DONE?

I have read with great interest the editorial on the "Economies of Medicine," and the discussions that have followed it. The suggestion of raising the fees reminds me of the little advice given before the recipe how to cook a hare: *First catch the hare*. It is not a question with most physicians of the smallness of the fees, but of the scarcity of patients who are willing to call and pay anything. By getting only 50 cents in

the office and \$1.00 outside for ordinary calls, a physician by being busy only about eight hours a day could make about \$20.00 a day, and thus live in comfort. The trouble is that many patients are not willing to pay even so much, and the physician has to give his services free altogether, or at a nominal fee, in order to get the patients to come to him, and many physicians are happy when they can get patients on such conditions. The raising of the fees is evidently ridiculous advice. The physician usually knows how to charge when he gets the patients.

What is there to be done?

The trouble is that the medical profession, especially in the United States is in a most chaotic and deplorable condition. The people in this country have no respect and no confidence in their doctors, and they are right, too. To have half a dozen or more medical colleges in New York City alone, and many more in this State, is an abomination. One great university for the whole State ought to exist. The way physicians tumble over one another to get appointments in the hospitals, and the means they use to get them, and the way they are treated by the hospital directors tend to cheapen and disgrace the whole medical profession. Appointments to positions in hospitals, and also in colleges, ought to be like in France, by competitive examinations conducted by a broad-minded impartial jury. The German system cannot so far be used in this country, because it is saturated with the spirit of graft and favoritism. The civil service system in this country seems to be an improvement on the old non-competitive, nepotism system, and it ought to be introduced into our hospitals and dispensaries for all the positions except those of consultants. Thus the medical profession would gain prestige and the confidence and respect of the people, and there would be a material benefit likewise. But how to attain these results when everyone tries to advance only his own interests? Some advise organization. But we have County, State and National organizations, and what has been accomplished? Almost nothing. The organizations must be imbued with the spirit to do things, but unfortunately they are not, and our organizations do not even attempt to do anything in this respect. Great efforts had been used to consolidate the Medical Association with the Medical Society of the County of New York, but has anything been attempted, now that there is one organization, for the improvement of the general condition of the medical profession of New York? Nothing. The organization prosecutes a few quacks yearly, but it does not attempt to place the medical profession in such position that the people will have confidence in it and consult a licensed practitioner instead of a quack.

A recent editorial in the NEW YORK STATE JOURNAL OF MEDICINE deplored the fact that in a certain hospital the staff was treated with humiliation. Why, that staff and all the others get what they deserve. Under the present regime it makes no difference whether or not the hospitals and dispensaries are controlled by physicians as long as they form separate cliques and appoint themselves and their friends. The same abuses exist. The cliques must be done away with in the colleges as well as in the hospitals, and a central body must be in control of them. Who that body should be, and the various details ought to be discussed and elaborated by a special committee appointed by the New York State Medical Society, and the plans presented for discussion and ratification by the several County medical societies.

As long as there will not be a thorough reorganization in our colleges and hospitals things will go from bad to worse, and no measures will be in the least effective. But will those who now have soft profitable berths, and who are practically in control of our medical affairs and are responsible for the present condition of the medical profession agree to such changes, and will the medical profession have the

courage and the tenacity to bring them about? This is a question.

I am afraid the whole discussion will end in nothing and each one will continue to try to grab what he can, irrespective how injurious it may be in general. But I consider it my duty to point out the right way.

DR. E. PALIER,  
New York City.

## LEGISLATIVE NOTES.

### BILLS INTRODUCED INTO THE LEGISLATURE.

January 21 to February 18, 1910.

#### IN ASSEMBLY.

- An Act to amend the Penal Law, by adding a new section, 144, relative to the sale of articles kept in cold storage. By Mr. Lachman. To Codes Committee. Printed Nos. 149, 407. Int. 148.
- An Act to amend the charter of the City of Binghamton, relative to frontage tax to which lands are subject for the construction of sewers. By Mr. Perkins. To Cities Committee. (Same as S. 140.) Printed No. 176. Int. 175.
- An Act to amend section 241 of the Forest, Fish and Game Law, relative to storage of fish and game in close season. By Mr. Dana. To Forest, Fish and Game Committee. Printed No. A.182. Int. 181.
- An Act creating a commission for the government and control of a municipal hospital for the City of Buffalo for the care and treatment of persons affected with incipient tuberculosis. By Mr. MacGregor. To Cities Committee. (Same as S. 111.) Printed No. 196. Int. 195.
- An Act appropriating \$130,000 for the extension of the State Veterinary College at Cornell University. By Mr. Boshart. To Ways and Means Committee. (Same as S. 139.) Printed No. 201. Int. 200.
- An Act to amend section 84 of the Labor Law, relative to the safety and sanitary condition of floors and receptacles in factories. By Mr. Lee. To Labor and Industry Committee. Printed No. 206. Int. 205.
- An Act to amend the General Business Law by adding a new section, 9-a, relative to milk and cream bottles. By Mr. Murray. To General Laws Committee. Printed No. 231. Int. 226.
- An Act to amend section 267 of the Village Law, and adding a new section, 278, relative to powers of sewer commissioners. By Mr. Crocker. To Villages Committee. (Same as S. 173.) Printed No. 243. Int. 238.
- An Act to provide for the inspection of cold storage warehouses by boards of health in cities of the first class. By Mr. Oliver. To Cities Committee. Printed No. 248. Int. 243.
- An Act appropriating \$75,000 to enforce and carry out the provisions of article 5 of the Agricultural Law, relative to diseases of domestic animals. By Mr. Merritt. To Ways and Means Committee. Printed No. 288. Int. 280.
- An Act to amend the Greater New York Charter by adding a new section, 318-a, relative to the regulation of the sale of cocaine and eucaine. By Mr. A. E. Smith. To Cities Committee. Printed No. 296. Int. 288.
- An Act to amend section 211 of the Public Health Law, relative to qualifications for the practice of veterinary medicine and surgery. By Mr. A. E. Smith. To Public Health Committee. Printed No. 297. Int. 289.
- An Act to amend sections 210 and 224 of the Public Health Law, relative to practice of veterinary medicine, and to penalties for illegal practice. By Mr. Lansing. To Public Health Committee. Printed No. 316. Int. 300.
- An Act to legalize the proceedings of the village of Fultonville, relative to the sale and issuance of sewer and paving bonds of said village in the aggregate amount of \$19,000. By Mr. Van Olinda. To Villages Committee. (Same as S. 195.) Printed No. 325. Int. 309.
- An Act to provide for the expense of installing certain sewers and outlet sewers in the Borough of Brooklyn, New York City. By Mr. Clarke. To Cities Committee. Printed No. 341. Int. 325.
- An Act to amend section 31 of the Agricultural Law, relative to care and feed of cows and care and keeping of products therefrom. By Mr. Boshart. To Agricultural Committee. (Same as S. 233.) Printed No. 357. Int. 341.
- An Act to amend the Agricultural Law by adding a new section, 104, relative to the sale of slaughtered game, animal, poultry or fowl which shall have been kept in cold storage. By Mr. Caughlan. To Agriculture Committee. Printed No. 373. Int. 357.
- An Act to amend section 12 of the Agricultural Law, relative to investigating certain questions in regard to milk and milk products and other farm products, providing penalties, and appropriating \$25,000 therefor. By Mr. Boshart. To Ways and Means Committee. (Same as S. 232.) Printed No. 358. Int. 342.
- An Act appropriating \$16,000 for certain quarantine expenses at Swinburne and Hoffman Islands. By Mr. Merritt. To Ways and Means Committee. (Same as S. 236.) Printed No. 365. Int. 350.
- An Act to amend the Education Law by adding six new sections, 765 to 770, inclusive, relative to preventing cruelty by conferring upon the Board of Regents of the University of the State of New York the power of supervision of experiments on living animals. By Mr. Murray. To Judiciary Committee. Printed No. 385. Int. 369.
- An Act to amend chapter 193, Laws of 1903, relative to increasing the amount which the city of Gloversville will have power to borrow for the construction of intercepting and trunk-sewers and purification works. By Mr. Vosburgh. To Cities Committee. (Same as S. 263.) Printed No. 390. Int. 374.
- An Act relative to the municipal commission and the police, fire, water, sewer and light departments of the village of Herkimer, and repealing certain acts relating thereto. By Mr. Eveleth. To Villages Committee. Printed No. 398. Int. 383.
- An Act to amend section 37 of the State Finance Law, relative to payments to State Treasurer by the Health Officer of the Port of New York. By Mr. Merritt. To Ways and Means Committee. (Same as S. 253.) Printed No. 401. Int. 386.
- An Act appropriating \$45,000 for the construction and equipment of a sand filtration plant in connection with the existing water system of the St. Lawrence State Hospital. By Mr. Merritt. To Ways and Means Committee. (Same as S. 252.) Printed No. 402. Int. 387.
- An Act to amend sections 103, 120, 122 and 144 of the Public Health Law, relative to the Health Officer of the Port of New York. By Mr. Merritt. To Ways and Means Committee. (Same as S. 254.) Printed No. 403. Int. 388.
- An Act to regulate the introduction of medical expert testimony. By Mr. Fowler. To Judiciary Committee. (Same as S. 242.) Printed No. 406. Int. 391.
- An Act to amend chapter 404, Laws of 1881, relative to the territory in which the Methodist Episcopal Hospital in the city of Brooklyn may establish, maintain and conduct a hospital. By Mr. Green. To Judiciary Committee. Printed No. 422. Int. 402.
- An Act to amend chapter 300, Laws of 1904, relative to appropriation for hospitals in the City of Niagara Falls. By Mr. Keller. To Cities Committee. (Same as S. 250.) Printed No. 428. Int. 408.
- An Act to amend chapter 300, Laws of 1904, relative to the police, fire and health departments of the city of Niagara Falls. By Mr. Keller. To Cities Com-

- mittee. (Same as S. 249.) Printed No. 430. Int. 410.
- An Act making appropriations for repairs, renewals and betterments for the several State prisons, the Matteawan State Hospital for Insane Criminals and the Dannemora State Hospital for Insane Convicts. By Mr. Merritt. To Ways and Means Committee. (Same as S. 267.) Printed No. 432. Int. 412.
- An Act to amend section 33 of the Public Service Commissions Law, relative to the transportation of certain persons by common carriers at reduced rates, such persons being visitors to inmates of State hospitals and insane asylums. By Mr. Kopp. To Railroads Committee. Printed No. A. 445. Int. 425.
- An Act to amend the Penal Law, by adding a new section, 281, prohibiting corporations from practicing medicine, dentistry and pharmacy. By Mr. Joseph. To Codes Committee. Printed No. 468. Int. 443.
- An Act to incorporate the Provident Hospital. By Mr. G. W. Brown. To Judiciary Committee. (Same as S. 104.) Printed No. 483. Int. 458.
- An Act to amend section 11 of the Insanity Law, relative to the annual reports of the State Commission in Lunacy. By Mr. Ward. To Judiciary Committee. (Same as S. 272.) Printed No. 491. Int. 466.
- An Act to amend the Insurance Law by adding a new section, 108, relative to standard provisions for accident and health policies. By Mr. A. F. Allen. To Insurance Committee. (Same as S. 308.) Printed No. 493. Int. 468.
- An Act to amend the Village Law by adding a new article, 11-a, relative to plumbing and drainage. By Mr. Goodwin. To Villages Committee. Printed No. 524. Int. 492.
- An Act to amend chapter 410, Laws of 1882, relative to coroners' physicians in the Borough of Queens, New York City. By Mr. Wilsnack. To Cities Committee. (Same as S. 297.) Printed No. 538. Int. 506.
- An Act to amend the Village Law by adding a new subdivision, 27, to section 89, relative to the powers of village trustees in respect to the support of hospitals and the care of village residents therein. By Mr. F. L. Young. To Villages Committee. Printed No. 540. Int. 508.
- An Act to establish a State Veterinary College for the eastern portion of the State at the New York University in the City of New York, to provide for the administration thereof, and appropriating \$25,000. By Mr. Raldiris. To Ways and Means Committee. Printed No. 556. Int. 524.
- An Act to amend chapter 664, Laws of 1899, and to further amend chapter 593, Laws of 1895, relative to cutting and harvesting ice in the Hudson River. By Mr. Hackett. To General Laws Committee. Printed No. 574. Int. 538.
- An Act to amend section 1 of chapter 203, Laws of 1906, authorizing the City of Buffalo to issue bonds for the purpose of extending and improving the supply of water to the city and its inhabitants. By Mr. Weimert. To Cities Committee. (Same as S. 255.) Printed Nos. 589, 748. Int. 553.
- An Act to amend the Penal Law by adding a new section, 1142-a, prohibiting advertisements concerning certain diseases. By Mr. Holden. To General Laws Committee. Printed No. 598. Int. 562.
- An Act to amend sections 42, 45, 48 and 50 of the State Charities Law, and adding a new section, 52, relative to the regulation of State charitable institutions. By Mr. J. S. Phillips. To Judiciary Committee. (Same as S. 316.) Printed No. 606. Int. 570.
- An Act to consolidate the Utica Society for the Prevention of Cruelty to Children, the Gustavus Swan Society for the Prevention of Cruelty to Children, of Rome, N. Y., and the Stevens Society for the Prevention of Cruelty to Animals, of Rome, N. Y., under the name of The Stevens-Swan Humane Society of Oneida County. By Mr. Cross. To Judiciary Committee. Printed No. 618. Int. 579.
- An Act to amend sections 49 and 50 of the Insanity Law, relative to compensation of employees of the Willard State Hospital. By Mr. Cosad. To Ways and Means Committee. Printed No. 624. Int. 586.
- An Act to amend the State Charities Law, generally. By Mr. J. S. Phillips. To Judiciary Committee. (Same as S. 350.) Printed No. 697. Int. 599.
- An Act to amend section 319 of the Public Health Law, relative to the establishment of a hospital or camp for the treatment of pulmonary tuberculosis in the County of Westchester. By Mr. Goodwin. To Public Health Committee. Printed No. 640. Int. 600.
- An Act to amend the charter of the city of Lockport, relative to the salaries of the members of the police force, the annual allowance to the fire companies, the police fund and the city hospital fund. By Mr. Feeley. To Cities Committee. (Same as S. 348.) Printed No. 643. Int. 603.
- An Act to amend section 14 of the Public Health Law, relative to the authority of the State Commissioner of Health over certain State institutions. By Mr. Wood. To Public Health Committee. (Same as S. 362.) Printed No. 646. Int. 605.
- An Act to amend chapter 334, Laws of 1901, the Tenement House Law, relative to height of tenement houses. By Mr. Burgoyne. To Cities Committee. Printed No. 672. Int. 616.
- An Act to amend the Navigation Law, by adding a new section, 52-a, relative to prohibiting putrid deposits and sewage in certain waters in the counties of Hamilton and Herkimer. By Mr. Eveleth. To Public Health Committee. Printed No. 686. Int. 630.
- An Act to amend the Navigation Law, by adding a new section, 15-a, relative to lavatories on ferry boats operated in cities of the first class. By Mr. Hackett. To Commerce and Navigation Committee. Printed No. 712. Int. 644.
- An Act to amend sections 109, 110 and 111 of the Agricultural Law, relative to abattoirs and places where meat and meat products are manufactured, sold or kept for sale, and appropriating \$60,000 therefor. By Mr. Lansing. To Ways and Means Committee. Printed No. 736. Int. 668.
- An Act to amend section 88 of the Labor Law, relative to sanitary conveniences. By Mr. C. W. Phillips. To Labor and Industry Committee. Printed No. 738. Int. 670.
- An Act to amend section 93 of the Insanity Law, and adding a new section, 93-a, relative to writs of habeas corpus or certiorari in behalf of insane persons in State Hospitals. By Mr. J. S. Phillips. To Codes Committee. Printed No. 740. Int. 672.

IN SENATE.

- An Act to amend section 5 of chapter 725, Laws of 1905, relative to the compensation of Commissioners of Appraisal, appointed to appraise the value of land needed by the City of New York for the water supply. By Mr. Agnew. To Cities Committee. (Same as A. 2.) Printed No. 103. Int. No. 103.
- An Act incorporating Provident Hospital. By Mr. Gledhill. To Judiciary Committee. Printed No. 104. Int. 104.
- An Act to amend the Penal Law by adding a new section, 444, relative to the sale of articles kept in cold storage. By Mr. Alt. To Codes Committee. Printed No. 105. Int. 105.
- An Act appropriating \$636,000 for the construction of buildings and improvements for the New York State Training School for Boys. By Mr. Hill. To Finance Committee. (Same as A. 170.) Printed No. 110. Int. 110.
- An Act creating a commission for the government and control of a municipal hospital for the City of Buffalo for the care and treatment of persons infected with incipient tuberculosis. By Mr. Davis. To Cities Committee. (Same as A. 195.) Printed No. 111. Int. 111.

- An Act appropriating \$130,000 for the extension of the State Veterinary College at Cornell University. By Mr. Cobb. To Finance Committee. (Same as A. 200.) Printed No. 139. Int. 139.
- An Act to amend the charter of the city of Binghamton relative to frontage tax to which lands are subject for the construction of sewers. By Mr. Hinman. To Cities Committee. (Same as A. 175.) Printed No. 140. Int. 140.
- An Act to amend the charter of the city of Lackawanna, relative to the salaries of the police commissioner, fire commissioner and members of the board of health. By Mr. Davis. To Cities Committee. (Same as A. 231.) Printed No. 144. Int. 144.
- An Act to amend section 267 of the Village Law, and adding a new section, 278, relative to powers of sewer commissioners. By Mr. Witter. To Village Committee. (Same as A. 238.) Printed No. 173. Int. 173.
- An Act to amend subdivision 15 of section 89 of the Village Law, relative to drains. By Mr. Davis. To Villages Committee. Printed No. 178. Int. 178.
- An Act to amend the Penal Law by adding two new sections, 444 and 445, relative to the sale of articles kept in cold storage. By Mr. Stillwell. To Codes Committee. Printed No. 187. Int. 187.
- An Act to legalize the proceedings of the Village of Fultonville, relative to the sale and issuance of sewer and paving bonds of said village. By Mr. Gardner. To Judiciary Committee. (Same as A. 309.) Printed No. 197. Int. 195.
- An Act to amend the General Business Law by adding a new section, 399, relative to the sale of farm products. By Mr. Hewitt. To Judiciary Committee. Printed No. 233. Int. 231.
- An Act to amend the Agricultural Law by adding a new section, 12, relative to investigation of certain questions relative to milk and milk products and other farm products, providing penalties and appropriating \$25,000 therefor. By Mr. Pratt. To Finance Committee. (Same as A. 342.) Printed No. 234. Int. 232.
- An Act to amend section 31 of the Agricultural Law, relative to the care and feed of cows, and care and keeping of the products therefrom. By Mr. Platt. To Agriculture Committee. (Same as A. 341.) Printed No. 235. Int. 233.
- An Act appropriating \$16,100 for certain quarantine expenses at Swinburne and Hoffman Islands. By Mr. Hill. To Finance Committee. (Same as A. 350.) Printed No. 237. Int. 236.
- An Act to regulate the introduction of medical expert testimony. By Mr. Wainwright. To Judiciary Committee. (Same as A. 391.) Printed No. 243. Int. 242.
- An Act to amend chapter 300 of the Laws of 1904, relative to appropriations by the City of Niagara Falls for hospital purposes. By Mr. Mackenzie. To Cities Committee. (Same as A. 408.) Printed No. 251. Int. 250.
- An Act to amend section 37 of the State Finance Law, relative to payments to the State Treasurer by the Health Officer of the Port of New York. By Mr. Hill. To Finance Committee. (Same as A. 386.) Printed No. 254. Int. 253.
- An Act to amend sections 103, 120, 122 and 144 of the Public Health Law, relative to the Health Officer of the Port of New York. By Mr. Hill. To Finance Committee. (Same as A. 388.) Printed No. 255. Int. 254.
- An Act to amend chapter 203 of the Laws of 1906, to increase the amount which the City of Buffalo shall have power to borrow for extending and improving its water supply. By Mr. Davis. To Cities Committee. Printed No. 256. Int. 255.
- An Act to amend chapter 193, Laws of 1903, relative to the construction of intercepting and trunk sewers in the City of Gloversville. By Mr. Heacock. To Cities Committee. (Same as A. 374.) Printed No. 265. Int. 463.
- An Act relative to the Municipal Commission and the police, fire, sewer, water and light departments of the Village of Herkimer, and repealing certain acts relating thereto. By Mr. Heacock. To Villages Committee. (Same as A. 283.) Printed No. 266. Int. 264.
- An Act making appropriation for repairs, renewals and betterments at the several State Prisons, the Matteawan State Hospital for Insane Criminals and the Dannemora State Hospital for Insane Convicts. By Mr. Hill. To Finance Committee. (Same as A. 412.) Printed No. 269. Int. 267.
- An Act to amend section 11 of the Insanity Law, relative to the annual reports of the State Commission in Lunacy. By Mr. Agnew. To Judiciary Committee. (Same as A. 466.) Printed No. 276. Int. 272.
- An Act to amend the Education Law, by adding six new sections, 765 to 770, relative to preventing cruelty by conferring upon the Board of Regents of the University of the State of New York the power of supervision of experiments on living animals. By Mr. Brough. To Public Education Committee. (Same as A. 369.) Printed No. 278. Int. 274.
- An Act to amend section 1181 of the Greater New York Charter, relative to assistant sanitary superintendents and assistant registrars of records. By Mr. McManus. To Cities Committee. Printed No. 289. Int. 285.
- An Act to amend chapter 410, Laws of 1882, relative to coroners' physicians in the Borough of Queens, New York City. By Mr. Harte. To Cities Committee. (Same as A. 506.) Printed No. 301. Int. 297.
- An Act to amend section 264 of the Code of Civil Procedure, extending the jurisdiction of the Court of Claims to the police and fire departments and department of public charities of the City of New York, and to the governing board, officers or employees of the various state institutions. By Mr. Cullen. To Codes Committee. (Same as A. 527.) Printed No. 304. Int. 300.
- An Act to authorize any municipal corporation or other civil division of the State within the County of Westchester to obtain a supply of water from any of the reservoirs, aqueducts, conduits, streams or pipes of the City of New York in said county, and to provide for the payment therefor. By Mr. Wainwright. To Cities Committee. Printed No. 308. Int. 304.
- An Act to amend sections 41, 42, 45, 48 and 50 of the State Charities Law, and adding a new section, 52, relative to the regulation of State charitable institutions. By Mr. Davis. To Finance Committee. (Same as A. 570.) Printed No. 316. Int. 316.
- An Act to amend the Greater New York Charter by adding a new section, 1230, providing for the establishment of dental stations for the treatment of school children. By Mr. McManus. To Cities Committee. Printed No. 332. Int. 330.
- An Act to amend the charter of the City of Lockport, relative to salaries of the members of the police force, the annual allowance of the fire companies, the police fund and the city hospital fund. By Mr. Mackenzie. To Cities Committee. (Same as A. 603.) Printed No. 356. Int. 348.
- An Act to amend the State Charities Law, generally. By Mr. Davis. To Judiciary Committee. (Same as A. 599.) Printed No. 364. Int. 350.
- An Act to repeal sections 310 and 311 of the Public Health Law, relative to vaccination of school children. By Mr. Mackenzie. To Public Health Committee. Printed No. 363. Int. 356.
- An Act to amend section 14 of the Public Health Law, relative to the authority of the State Commissioner of Health over certain State Institutions. By Mr. Witter. To Public Health Committee. (Same as A. 605.) Printed No. 374. Int. 362.

An Act to amend section 324 of the Public Health Law, relative to disinfection by health authorities. By Mr. Coats. To Public Health Committee. Printed No. 395 Int. 382.

An Act to amend the Agricultural Law by adding thirteen new sections, 320 to 333, inclusive, relative to dogs and domestic animals killed or damaged by dogs, and repealing article 7 of the County Law. By Mr. Cobb. To Agricultural Committee. Printed No. 398. Int. 385.

## COUNTY SOCIETIES.

### MEDICAL SOCIETY OF THE COUNTY OF FRANKLIN.

SIXTY-THIRD ANNUAL MEETING AT MALONE, JANUARY 11, 1910.

Comitia Minora meeting at 10:30 A. M., Vice-President, Dr. E. R. Baldwin, in the chair.

The following officers were elected for the ensuing year: President—Edward R. Baldwin, Saranac Lake; Vice-President—Albert H. Garvin, Ray Brook; Secretary-Treasurer—George M. Abbott, Saranac Lake; Censor—Hugh McL. Kinghorn.

Delegate to State Society—G. M. Abbott.

The reports of the Secretary and Treasurer were read and by vote of the Society accepted as read.

Dr. G. H. Oliver reported for the Board of Censors that legal action had been taken against one Thomas Quinlan for illegally practicing medicine in Franklin County. He was taken before a Justice of the Peace in Malone, who held him under bail for the action of the Grand Jury. When taken before that body, although sufficient evidence was produced, it failed to find an indictment. After some discussion, by vote of the Society the Board of Censors was instructed to lay the whole matter before the proper officers of the State Society.

An amendment to Sec. 2 of Chap. 9 of the by-laws, to change the word "January" in second line to the word "December," so as to read, "The annual meeting shall be held on the second Tuesday in December in each year, etc.," was unanimously adopted.

#### SCIENTIFIC SESSION.

"Practical Methods in the Hygiene of Tuberculosis," E. R. Baldwin, Saranac Lake.

"Uncinariasis and Some of Its Problems," C. V. R. Bumsted, Lake Placid.

"Observations on My Recent Trip Abroad," J. A. Grant, Malone.

"The Female Gonococcus," R. W. Van Dyke, Malone.

The meeting was then thrown open to the discussion of the papers. Dr. Grant read a communication from the American Medical Association with special reference to public meetings.

On motion of Dr. Dalphin the Society voted to take action at its next meeting towards making dates and arrangements for special public meetings in which the public take some active part.

The question of public hygiene with special reference to tuberculosis in Malone was discussed by Drs. Harwood, Goodall, Dalphin, Bumsted and Whipple, and it was decided to interest the public by literature and pamphlets on tuberculosis and public meetings other than that of the County Society.

### MEDICAL SOCIETY OF THE COUNTY OF SHENECTADY.

REGULAR MEETING, WEDNESDAY, FEBRUARY 16, 1910.  
SCIENTIFIC PROGRAM.

"The Different Diagnosis of Gall Bladder Disease, Ulcer and Cancer of the Stomach," Donald Guthrie, Wilkesbarre, Pa.

### MEDICAL SOCIETY OF THE COUNTY OF ULSTER.

Public Health Lecture at Y. M. C. A. Hall, Tuesday evening, February 15th, under the auspices of the Medical Society of the County of Ulster and the Hygiene and Civic Committees of the Kingston Federation of Women's Clubs.

#### PROGRAM.

"Municipal Water Supply Engineering from the Sanitary Standpoint," A. J. Provost, Jr., Sanitary Expert, Board of Water Supply, New York City.

"Sanitary Field Supervision of Industrial Camps," David S. Flynn, M.D., Field Representative of the Sanitary Experts, Board of Water Supply, New York City.

"Medical Problems in Industrial Camps," H. D. Pease, M.D., Lederle Laboratories and Sanitary Expert, Board of Water Supply, New York City.

This paper was followed by a moving picture demonstration of the life history of flies and the part they play in the transmission of diseases.

### MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

REGULAR MEETING, WEDNESDAY, FEBRUARY 23, 1910,  
AT ALBANY.

#### SCIENTIFIC SESSION.

"The Diagnosis of Diseases of the Kidney," arranged by the Clinical Club.

"Historical Review," Erastus Corning, Albany.

"Anatomy and Physiology," Frederic C. Conway, Albany.

"Pathological Anatomy and Bacteriology," Arthur T. Laird, Albany.

"Clinical Pathology," James F. Rooney, Albany.

"Anamnesis and Physical Examination," D. V. O'Leary, Jr., Albany.

"Nephritis," Joseph P. O'Brien, Albany.

"Diseases of the Kidney in Children," Harry Rulison, Albany.

"Co-relation of Nephritis and Other Diseases," Malcolm Douglas, Albany.

"Ocular Changes in Nephritis," Arthur J. Bedell, Albany.

"Dermatology," Joseph A. Lanahan, Albany.

"Manifestations in Upper Respiratory Tract," Eugene E. Hinman, Albany.

"Skiography," Arthur Holding, Albany.

"Abnormalities, Displacements, Etc.," Joseph A. Cox, Albany.

"Infections and Stone," John H. Gutman, Albany.

"Mechanical Methods," James N. Vander Veer, Albany.

An informal lunch was served at the University Club at the close of the meeting.

## BOOKS RECEIVED.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

LIVING ANATOMY AND PATHOLOGY. The Diagnosis of Diseases in Early Life by the Roentgen Ray Method. By THOMAS MORGAN ROTCH, M.D., Professor of Pediatrics, Harvard University. 303 illustrations. Philadelphia and London. J. B. Lippincott Company.

DISEASES OF THE GENITO-URINARY ORGANS. Considered from a Medical and Surgical Standpoint, including a Description of Gonorrhoea in the Female and Conditions Peculiar to the Female Urinary Organs. By EDWARD L. KEYES, Jr., M.D., Ph.D. Clinical Professor of Genito-Urinary Surgery, New York Polyclinic Medical School; Surgeon to St. Vincent's Hospital; Lecturer on Surgery, Cornell University

Medical School. With 195 illustrations in the text and seven plates, four of which are colored. New York and London. D. Appleton & Company. 1910. Price in cloth, \$6.00.

PREPARATORY AND AFTER TREATMENT IN OPERATIVE CASES. By HERMAN A. HAUBOLD, M.D. Clinical Professor in Surgery, New York University and Bellevue Hospital Medical College, New York Visiting Surgeon, Harlem and New York Red Cross Hospitals, New York, etc. With 429 illustrations. New York and London. D. Appleton & Company. 1910. Price in cloth, \$6.00.

NUTRITION AND DIETETICS. A manual for students of medicine, for trained nurses, and for dietitians in hospitals and other institutions. By WINFIELD S. HALL, Ph.D., M.D. Professor of Physiology, Northwestern University Medical School; Lecturer on Physiology and Dietetics in Mercy Hospital and Wesley Hospital, Chicago. New York and London. D. Appleton & Company. 1910. Price in cloth, \$2.00.

THE ELEMENTS OF THE SCIENCE OF NUTRITION. By GRAHAM LUSK, Ph.D., Sc.D., F.R.S. (Edin.). Professor of Physiology at the Cornell University Medical College, New York City. Second Edition, revised and enlarged. Philadelphia and London. W. B. Saunders Company. 1909. Price in cloth, \$3.00.

ANATOMY AND PHYSIOLOGY FOR NURSES. By LEROY LEWIS, M.D., Surgeon to and Lecturer on Anatomy and Physiology for Nurses at the Lewis Hospital, Bay City, Michigan. Second Edition, revised and enlarged. Philadelphia and London. W. B. Saunders Company. 1910. Price in cloth, \$1.75.

SERUM DIAGNOSIS OF SYPHILIS AND THE BUTYRIC ACID TEST FOR SYPHILIS. By HIDEYO NOGUCHI, M.D., M.Sc. Associate Member of the Rockefeller Institute for Medical Research, New York. 14 illustrations. Philadelphia and London. J. B. Lippincott Company. Price, \$2.00.

MODERN SURGERY. General and Operative. By JOHN CHALMERS DA COSTA, M.D. Professor of Surgery and Clinical Surgery in Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia General Hospital; Consulting Surgeon to St. Joseph's Hospital, Philadelphia; Fellow of the American Surgical Association; Member of the American Philosophical Society; Membre de la Société Internationale de Chirurgie; Member of the Medical Reserve Corps, U. S. A. Sixth Edition, thoroughly revised and enlarged. With 966 illustrations, some of them in colors. Philadelphia and London. W. B. Saunders Company. 1910. Price in cloth, \$5.50.

W. B. SAUNDERS COMPANY, ILLUSTRATED CATALOGUE. Thirteenth Edition. Contains twenty new books and new editions, and besides numerous black-and-white illustrations, there are two color cuts of special value. It will prove a ready guide to good medical books—books that we all need in our daily work. Physicians can obtain a copy for the asking.

## BOOK REVIEWS.

PRIMARY STUDIES FOR NURSES. A text-book for first year pupil nurses, containing courses of studies in anatomy, physiology, hygiene, bacteriology, therapeutics and *Materia Medica*, dietetics, and invalid cookery. By Charlotte A. Aikens. Illustrated. Philadelphia and London. W. B. Saunders Company. 1909. Price, cloth, \$1.75 net.

An extremely practical work well adapted to class room study as well as for ready reference, containing in concentrated form material collected from various authorities. The first part of the work is given to the various common diseases, the space given each being commensurate with its importance.

Accidents and emergencies are dealt with thoroughly, though the therapeutics of concealed hemorrhage would be criticized by many.

At the end of each division are a number of blank pages for additional note taking; also six hundred questions appear at the end of the work which serve as reviews of the various subjects.

The various forms of diets are very fully given, many being taken from our most representative hospitals. The illustrations are well selected and add very materially to the value of the work.

GEORGE McNAUGHTON.

INTERNATIONAL CLINICS. Edited by W. T. LONGCOPE, M.D. Vol. IV. Nineteenth Series. 1909. Philadelphia and London. J. B. Lippincott Company. 1909.

This volume contains chapters on treatment, medicine, surgery, röntgenology, gynecology, obstetrics, genito-urinary diseases, pediatrics, parasitology, laryngology, and pathology. It is well illustrated.

An article by Flexner on the results of treatment with antimengitis serum opens the book. The therapeutic use of tuberculin is well discussed by Hammon. In a chapter by Niles on the therapeutic uses of diet, the author expresses the simple, sensible, but to modern medical college teaching, extraordinary statement, that, the day is not far distant when dietetics will constitute a separate and respectable branch of every medical curriculum, and each student will be made proficient in all that relates to the intelligent nourishment of the body in both health and disease. To the sensible layman this seems reasonable enough; but if he should suffer from the diseases due to overeating and consult a physician, the chances are that he would be treated with some compressed tablets or a prescription for some colored liquid which would be supposed to charm away his ills, when, indeed, all that he needed would be less food and no medicine.

The report of a surgical clinic by Rodman embraces some instructive cases. Case I was an undiagnosed collection of fluid posterior to the omentum. The reason for using pelvic drainage is not given. Case II is an undiagnosed brain lesion. The patient was operated upon for brain tumor, but no report of examination for choke disc appears. Tumor was not found. Post-operative subdural hemorrhage caused death eight hours after operation. Why the child, Case III, with angioma of the face was discharged, "as further treatment seemed inadvisable," does not appear. Epithelioma of the lip, Case IV, was treated by excision of V-shaped piece. The edges of the wound were cauterized by thermocautery and wound sutured. Case V is report of removal of a cystic goiter. Case VI is headed adenofibroma of breast. Size not given. Length of incision for removal not given. Macroscopic and microscopic diagnosis, fibroma, a half-tone picture "showing operative result," to illustrate how little mutilation results from such an operation, shows no scar or depression; indeed, the breast operated upon looks better than the other one. Case VII is a carcinoma of the breast which was removed by the method, the technic of which "may be found in Dr. W. L. Rodman's monograph on Diseases of the Breast." Eight other cases are reported, all interesting and instructive.

This volume contains also a number of other papers on subjects of current interest.

J. P. W.

## DEATHS.

FOLLEN CABOT, M.D., New York City, died February 13, 1910.

E. LOWELL MARCY, M.D., Buffalo, died January 24, 1910.  
MOSKIEWITZ, MAX, New York City, died January 4, 1910.

ERNEST WENDE, M.D., Buffalo, died February 11, 1910.  
J. A. WESTLAKE, M.D., Elmira, died January 31, 1910.

# Medical Society of the State of New York

## ANNUAL REPORTS

### 1909

#### REPORT OF THE SECRETARY

To the House of Delegates:

In compliance with Section 3, Chapter VI, of the By-Laws, the Secretary submits the following report for the year ending December 31, 1909:

	1909.	1908.
Membership December 31.....	6,740	6,595
Dropped for non-payment of dues, December 31.....	370	374
Membership after removal of delinquents, December 31.....	6,370	6,221
Percentage paid up to total membership, December 31 .....	94.5%	95%
Deaths .....	72	98
Resignations .....	49	16
Expulsions .....	1	0
New and reinstated members.....	641	729

The Council at its May meeting passed a resolution permitting members who joined their County Societies after October 1, 1909, to have their State Assessments credited to 1910, if they so desired. 144 took advantage of this provision, so that the membership of 6,370 will be increased on Jan. 1 to 6,514, a gain of 348 over the membership on Jan. 1, 1909.

Deducting the 209 reinstated members of 1908 from 374 dropped December 31, 1908, the loss is only 165 for that year.

The increase in Society membership for the years 1908 and 1909 should encourage the county societies to make still greater efforts in the future. The 250 or more who each year drop out for various reasons cannot be avoided, as death alone claims nearly one-third. The percentage of resignations and dropped members is very small compared with the large membership, and shows very clearly the excellent work done by the county officers, especially the Secretaries and Treasurers.

The honor list of County Societies whose membership for 1909 is fully paid up is as follows:

Chenango, Columbia, Cortland, Erie, Fulton, Herkimer, Ontario, Tompkins, Warren, Westchester and Wyoming.

In accordance with the resolution presented at the meeting of the House of Delegates, Jan. 26, 1909, "That the Committee on Legislation consult with the Counsel and if necessary have passed by the State Legislature an act allowing the Medical Society of the State of New York to change the time and place of holding the Annual Meeting," a bill was passed and became, by the signature of the Governor, Chapter 213 of the Laws of 1909:

*The People of the State of New York, represented in Senate and Assembly, do enact as follows:*

Section 1. Section one of chapter five of the laws of eighteen hundred and seventy-six, entitled "An act to enable the Medical Society of the State of New York to alter the time of holding its annual meeting," is hereby amended to read as follows:

§ 1. The Medical Society of the State of New York may from time to time change the place and day of holding its annual meeting to such other place and day in the year as may be more convenient, by a two-thirds vote of all the members of the House of Delegates of said Society present at any anniversary or annual meeting of said Society, provided, that no such change shall be made unless notice of the intention to change the time and place of such annual meeting shall have been first given at a previous regular annual meeting. An entry in the minutes of said Society of notice of such intention to change the time and place of the annual meeting, and an entry in such minutes of the vote taken upon any motion made pursuant to any such notice shall be *prima facie* evidence of such notice, motion, and the vote had thereon respectively.

Sec. 2. This act shall take effect immediately.

As the Constitution of the State Society must conform to the laws of the State, it would seem desirable to substitute for section 1 of Article VI. of the present Constitution, Chapter 213 of the Laws of 1909.

The following delegates were given certificates to other Societies during the year:

International Congress at Budapest—Fred H. Albee, Herman J. Boldt, New York; Henry L. Elsner, Syracuse; Samuel Sherwell, Darwin W. Waugh, Brooklyn, and George S. Munson, Albany. Massachusetts Medical Society—Arthur Woodward Booth, Elmira. Vermont State Medical Society—Albert Vander Veer, Albany; Allen A. Jones, Buffalo.

Respectfully submitted,

WISNER R. TOWNSEND,

December 31st, 1909.

Secretary.

REPORT OF TREASURER

ALEXANDER LAMBERT, *Treasurer*, In Account with THE MEDICAL SOCIETY OF THE STATE OF  
NEW YORK.

DR.

CR.

CASH RECEIPTS, year ending December 31, 1909.	
To Balance January 1.....	\$5,300.30
“ Directory, 1908.....	\$582.50
“ Directory, 1909.....	1,894.20
“ Clerical Work.....	160.32
“ Interest on Deposits.....	265.46
“ Interest on Bonds.....	90.00
“ Sundry Receipts.....	94.43
“ Advertising.....	6,373.52
“ Reprints.....	148.25
“ Annual Dues, 1906.....	6.00
“ “ “ 1907.....	33.00
“ “ “ 1908.....	624.00
“ “ “ 1909.....	19,009.00
“ “ “ 1910.....	423.00
“ Com. on Exp. Medicine.....	369.33
	<u>30,073.01</u>
	\$35,373.31

CASH PAYMENTS, year ending December 31, 1909.	
By Annual Dues, Overpayment,.....	\$19.00
Furniture and Fixtures.....	55.00
Traveling Expenses.....	229.29
Accountant.....	200.00
Carfares.....	32.96
Express.....	15.81
Treasurer's Bond.....	25.00
Sundry Petty Cash Disbursements.....	255.02
Telephone.....	133.35
Stationery and Printing.....	141.15
Postage.....	450.65
Rent.....	900.00
Insurance.....	5.70
Committee on Legislation.....	206.00
Legal Expenses.....	3,000.00
1908 Directory.....	3.25
1909 Directory.....	8,697.29
JOURNAL Expense.....	271.73
“ Salaries.....	1,180.75
“ Commission.....	1,084.80
“ Publication.....	5,617.97
Reprints.....	79.80
District Branches.....	356.37
Clerical Work.....	109.30
Salaries.....	1,581.26
Sundries.....	17.99
Annual Meeting.....	317.75
Committee on Exp. Med.....	369.33
Interest on Bonds.....	90.00
Secretary.....	500.00
	<u>25,946.52</u>
Balance in Fifth Avenue Trust Co.....	9,426.79
	\$35,373.31

ANNUAL DUES, 1909			
County	Amt. Paid	County	Amt. Paid
Albany.....	\$423.00	Oneida.....	417.00
Allegany.....	159.00	Onondaga.....	462.00
Broome.....	159.00	Ontario.....	192.00
Cattaraugus.....	108.00	Orange.....	228.00
Cayuga.....	186.00	Orleans.....	84.00
Chautauqua.....	216.00	Oswego.....	168.00
Chemung.....	141.00	Otsego.....	102.00
Chenango.....	123.00	Rensselaer.....	276.00
Clinton.....	123.00	Richmond.....	129.00
Columbia.....	93.00	Rockland.....	93.00
Cortland.....	87.00	St. Lawrence...	138.00
Delaware.....	75.00	Saratoga.....	138.00
Dutchess.....	276.00	Schenectady.....	264.00
Erie.....	1,068.00	Schoharie.....	42.00
Franklin.....	111.00	Schuylcr.....	45.00
Fulton.....	126.00	Seneca.....	72.00
Genesee.....	96.00	Steuben.....	177.00
Greene.....	81.00	Suffolk.....	234.00
Herkimer.....	165.00	Sullivan.....	54.00
Jefferson.....	201.00	Tioga.....	87.00
Kings.....	2,280.00	Tompkins.....	111.00
Lewis.....	51.00	Ulster.....	167.00
Livingston.....	135.00	Warren.....	81.00
Madison.....	105.00	Washington....	87.00
Monroe.....	659.00	Wayne.....	78.00
Montgomery...	138.00	Westchester....	495.00
Queens - Nassau	318.00	Wyoming.....	87.00
New York.....	6,741.00	Yates.....	42.00
Niagara.....	186.00		
		Total.....	\$19,183.00

ADVANCE DUES, 1910			
Allegany.....	\$3.00	Ontario.....	3.00
Albany.....	33.00	Oneida.....	18.00
Broome.....	3.00	Orleans.....	3.00
Cattaraugus....	15.00	Oswego.....	3.00
Chautauqua.....	21.00	Otsego.....	3.00
Columbia.....	63.00	Rockland.....	3.00
Dutchess.....	9.00	Seneca.....	3.00
Erie.....	156.00	Suffolk.....	15.00
Greene.....	3.00	Steuben.....	9.00
Genesee.....	3.00	Westchester...	6.00
Kings.....	36.00		
Madison.....	3.00		\$423.00
Niagara.....	9.00		

DIRECTORY ACCOUNT, 1909	
<i>Expenditures</i>	
Postage.....	\$187.08
Stationery and Printing.....	238.40
Delivery.....	1,156.83
County Clerk's fees.....	8.75
Salaries.....	2,013.64
Printing and Binding Directory.....	5,075.09
	<u>\$8,679.79</u>
<i>Income</i>	
Advertisements.....	1,192.50
Sales.....	1,434.20
	<u>\$2,626.70</u>
Cost of Directory.....	\$6,053.09



REPORT OF TREASURER

JOURNAL ACCOUNT, YEAR ENDING DECEMBER 31, 1909

<i>Income</i>		<i>Expenditures</i>	
Advertising.....	\$6,149.92	Publication .....	\$5,595.47
Subscription & Sales .....	10.25	Expense.....	242.70
	\$6,160.17	Salaries .....	1,180.75
Loss .....	2,320.71	Commission .....	1,202.30
	\$8,480.88	Discount.....	97.47
		Doubtful Debts.....	162.19
			\$8,480.88

BALANCE SHEET, DECEMBER 31, 1909

<i>Assets</i>		<i>Liabilities</i>	
Cash in Bank.....	\$9,426.79	Annual Dues, 1910.....	\$423.00
Petty.....	15.99	Accounts Payable .....	85.74
	\$9,442.78	Lucien Howe Prize Fund. \$1,696.58	
Accounts Receivable.....	752.33	Merritt H. Cash Fund... 846.84	
Furniture and Fixtures.....	250.00		2,543.42
Directory Catalogue.....	250.00	Surplus Jan. 1, 1909.....	11,359.76
	500.00	Furniture and	
Directory, 1909.....	750.00	Fixtures.....	\$805.00
Postage (on hand).....	180.00	Directory	
Union Dime Savings Institution....	243.65	Catalogue ...	2,750.00
Albany Savings Bank.....	299.77	Written off.....	3,555.00
Title G. & T. Co., Mtg. Ctf.....	2,000.00		7,804.76
	2,543.42	Gain 1909.....	3,311.61
		Surplus Dec. 31, 1909.....	11,116.37
			\$14,168.53
	\$14,168.53		

I hereby certify that the above Balance Sheet is correct, as shown by the books.

A. H. WICKS,  
Certified Public Accountant,  
302 Broadway, New York

INCOME AND EXPENDITURES, YEAR ENDING DECEMBER 31, 1909

<i>Income</i>		<i>Expenditures</i>	
Arrears of Dues.....	\$ 663.00	Expense.....	\$ 761.09
Dues, 1909.....	19,164.00	Telephone.....	133.35
Interest on Deposits.....	265.46	Stationery and Printing.....	141.15
Clerical Work.....	51.02	Postage .....	420.65
Sundries .....	19.15	Rent .....	900.00
	\$20,162.63	Insurance.....	5.70
		Salaries.....	1,557.26
		Committee on Legislation.....	213.25
		Legal Expense.....	3,000.00
		Annual Meeting.....	317.65
		District Branches.....	356.37
		1908 Directory.....	170.75
		1909 ".....	6,053.09
		Secretary.....	500.00
		JOURNAL Loss.....	2,320.71
			16,851.02
		Excess of Income.....	3,311.61
			\$20,162.63

INCOME AND EXPENDITURES, YEAR ENDING DECEMBER 31, 1908

<i>Income</i>		<i>Expenditures</i>	
Arrears of Dues.....	\$ 579.00	Expense.....	\$1,097.47
Dues, 1908.....	18,749.00	Telephone.....	140.43
Interest on Deposits.....	85.83	Stationery and Printing.....	226.61
Clerical Work.....	16.68	Postage .....	294.80
1907 Directory.....	3.28	Rent .....	600.00
	\$19,433.79	Insurance.....	11.38
		Salaries .....	910.84
		Committee on Legislation.....	718.14
		Legal Expenses.....	3,000.00
		Annual Meeting.....	483.82
		History Med. Soc. S. of N. Y.....	235.73
		1908 Directory.....	7,631.86
		District Branches.....	366.29
		Depreciation, Furniture & Fixtures	157.80
		JOURNAL, Loss.....	2,916.16
			\$18,791.33
		Excess of Income.....	642.46
			\$19,433.79

## REPORT OF THE COUNCIL

*To the House of Delegates:*

The Council of the Medical Society of the State of New York begs leave to present the following report:

During the past year meetings have been held on the following dates:

January 25th, in Albany. Minutes will be found in the New York State Journal of Medicine, volume 9, No. 2, page 64.

January 27th, in Albany. Minutes will be found in volume 9, No. 2, page 64.

May 8th, in Albany. Minutes will be found in volume 9, No. 6, page 263.

December 4th, in Albany. Minutes will be found in volume 10, No. 1, page 42.

A full report of the Committee on Publication is herewith appended, and for the expenses of the Society, the House of Delegates is referred to the annual report of the Treasurer with the statement that all expenses incurred were approved of beforehand by the Committee on Finance of the Council, and that all bills have been properly audited and the accounts examined and certified to by A. H. Wicks, a certified public accountant of the State of New York.

Respectfully submitted,

WISNER R. TOWNSEND,

December 31, 1909.

*Secretary.*

### Report of the Committee on Publication Appointed by the Council

The Committee appointed by the Council at a meeting held in Albany, Jan. 27, 1909, consisting of Drs. J. C. Bierwirth, S. W. S. Toms, S. E. Getty, Alexander Lambert and Wisner R. Townsend, begs leave to present the following report:

At the meeting held February 25th Dr. J. C. Bierwirth was appointed Chairman and Dr. A. T. Bristow editor for the ensuing year.

#### JOURNAL.

The Journal has been regularly issued on the 15th of each month except in December when it appeared on the 21st. This delay was not due to any fault of the Society, but to unavoidable causes in the office of the printers.

The expense has exceeded the revenue by \$2,320.71, which is \$595.45 less than for 1908.

The loss incurred by the adoption of the resolutions passed at the last meeting, limiting pharmaceutical preparations to those approved by the Council on Pharmacy and Chemistry of the American Medical Association, has not been fully felt during the past year, because contracts made prior to its adoption could not be cancelled until they expired. New advertising has already been secured for some that was dropped, and it is hoped that the deficit for 1910 will but slightly exceed that for 1909.

After a careful study of the subject the Committee has reduced the cost of the Journal to

\$1.00 per annum and 10c. a copy, to take effect Jan. 1, 1910, which action was approved by the Finance Committee of the Council. The former price of \$2.00 was higher than that of other monthly medical journals of similar size. Most favorable comments on the publication have been received by the Editor from many sources, and it is hoped to still further improve the Journal in the future. The reduction in price should increase the subscription list, but will in no wise affect the present arrangement of supplying the Journal free to each member of the Society in good standing.

#### DIRECTORY.

The Directory for 1909 was issued during the month of October, and contains 266 pages less than the previous year. This reduction in size was accomplished by use of a different type and by omitting some of the data of Connecticut and New Jersey. This does not lessen the value of the book to the New York physicians as the New York data are more complete than in former editions.

The Committee would be under great obligation to the profession if they would notify it of any name not found in the book, or of any errors that appear, as every effort is being made to make the volume as complete and accurate as possible.

The cost was \$6,053.09, which is \$1,578.77 less than in 1908. The edition for 1909 was 7,500 copies, which will be nearly exhausted by the time the 1910 issue is ready. The number on hand is 350. Full details as to cost of the Journal and Directory will be found in the statement of the Treasurer.

The Committee begs to thank the members of the Council and officers and members of the Society for their assistance during the past year.

Respectfully submitted,

J. C. BIERWIRTH, *Chairman,*

S. W. S. TOMS, ALEXANDER LAMBERT,  
S. E. GETTY, WISNER R. TOWNSEND.

December 31, 1909.

## REPORT OF THE COMMITTEE ON PUBLIC HEALTH

*To the House of Delegates:*

Your committee has interrogated the fifty-seven county medical societies in the State concerning local conditions pertaining to the public health. Replies have been received from only twenty-one. Eight of these, viz.: Albany, Greene, New York, Otsego, Schoharie, Suffolk, Tioga, and Westchester, report conditions that are satisfactory. From the remaining thirteen there are evidences of interest in the pollution of water courses by sewage, in the securing of pure food supplies, including milk, and in adequate provision for the care of the tuberculosis poor.

These are all vital questions and must remain the subjects of serious discussion until the public is secured from their evils.

### POLLUTION OF WATER.

The question of the pollution of streams and lakes that are the sources of water supply to communities is a state and national one. Individual communities have been in the habit of disposing of their sewage in accordance with the mechanical law of least resistance, and have used for sewage disposal natural water courses that have flowed from them with perfect impunity, thinking nothing and apparently caring nothing about other communities further down the streams. Manufacturers have pursued the same course, until now it is safe to say that almost no watersheds in the State are free from pollution, except only those few over which the State has granted especial guardianship to individual cities. By such usage for a long period of time, communities and manufacturers have claimed to have acquired certain legal rights to continue such a course, and the present law of the State is inadequate to compel them to stop this practice, however clearly proven it may be that it damages the health and prosperity of other towns and individuals.

By the act of 1903 the inauguration of new sewage disposal systems, by the use of natural water courses and the establishment of new manufacturing plants along water courses that would pollute the streams is put within the jurisdiction of the Commissioner of Public Health and can be controlled. But as the law now stands the Commissioner of Public Health has no jurisdiction over those who were polluting water courses prior to 1903 and who continue so to do. This is a grave defect in the law and is the cause of the persistence of many cases of the communicable diseases capable of transmission through water, and, indirectly, through milk and other food supplies like the green vegetables and fresh fruits that are rinsed in running tap water. In the recent conference of sanitary officers of the State, Professor Sedgwick, of the Massachusetts Institute of Technology, spoke of the sewage pollution of Niagara River and of the tremendous death rate from typhoid fever in Niagara Falls, and properly classified such pollution as a matter of interstate and international importance.

During the last session of the State Legislature, an amendment to the health law was introduced into both houses which gave the Commissioner of Health, with the approval of the Attorney General and the Governor, power to order out of water courses pollutions that are a menace to health or which constitute a public nuisance, howsoever long such pollutions may have been carried on with impunity.

Your committee *recommends*:

That the Medical Society of the State of New York declares its opinion that the public health is endangered by the pollution of water courses, and that the legislature should at once so amend the health laws as to make such pollution amenable to the control of the

Commissioner of Public Health under proper safeguards.

### PURITY OF FOODS.

The question of the purity of foods has received much needed attention in recent years and has again come prominently before the public during the past year.

The earnest presentation by the medical profession of the subject of the adulteration, the sophistication and the preservation of food stuffs by the use of harmful drugs, supported by the press and by the people, secured the enactment of a law popularly known as The Pure Food Law. In nation and in states the provisions of this law have been carried out with reasonable efficiency, though with a constant fight with some manufacturers and packers because of their criminal greed. In the packing of meats and the manufacture of meat products, fraud had become so general that the reputation of the nation was at stake and it became necessary to secure legislation by which the inspection by a government official of the material used and of the methods employed was instituted. Such inspection has produced salutary changes, and little complaint is longer heard of the quality and purity of these products.

The increasing cost of food supplies and the increasing difficulty in securing domestic service, from both of which evils there is no apparent relief, make it more and more important that we should be able to depend with confidence on the commercial food kitchens of the country. Almost no day passes but accounts appear in the newspapers of wholesale poisoning from the use of canned foods. Such illnesses and deaths are wholly preventable. Their occurrence is a crime, and they disgrace our country. They menace the canning industry. Only recently the health officer of a city is reported in the papers to have said that no canned goods are safe. Such a sweeping condemnation is not warranted. But the converse of this proposition ought to be true. It is the duty of a government that has undertaken to protect the people to make universally true the statement that all canned foods are safe.

To accomplish this there is demanded the same searching investigation of materials used and methods employed in the canning industry as became necessary to save foreign and domestic markets for American meat products.

In the canning and pickling of vegetables and fruits and in the manufacture of jellied and liquid preparation from fruits and vegetables and in the bottling of fruit juices, investigation had shown that it was an almost general custom to use some artificial preservative. This was at first controlled. But through the influence of the manufacturers the law has been modified so that the use of an unlimited quantity of a particular preparation, benzoate of soda, is permitted.

"There is not at the present time, knowledge concerning the physiological action of any of the antiseptic drugs used as food preservatives which is sufficiently full and convincing to warrant authoritative statements." On the other hand, the conclusions published by the special commission authorized to investigate the effect of benzoate of soda upon the human economy are at variance with the hitherto recorded experience of the medical profession. That statement alone indicates the necessity of the withholding of the seal of government approval of the unlimited use of this or any other antiseptic drug until this important question is settled so definitely that the medical profession shall accept the conclusions without any hesitation whatsoever. The medical profession has always stood as a bulwark to defend the people against that which is inimical to health. It has no quarrel except with those who practice fraud and deceit for their own gain and with those who are criminally ignorant or careless.

The first epoch making discovery which the immortal Pasteur gave to the world was that organic substances which had been subjected to heat and which were rendered impervious to air never underwent fermentation and would keep permanently so far as any changes due to the fermentative processes were concerned. It was the first link in his chain of argument against spontaneous generation. That truth has never been controverted and never can be. Upon its principle the canning industry was based. The use of any artificial preservative in foods of this class was the outgrowth of the demonstration that certain drugs inhibit fermentation in organic substances to which bacteria have free access. In the medical world we have passed from the idea of *antisepsis* to *asepsis*. We no longer seek agents destructive to bacteria, but the prevention of the access of inimical bacteria to the human body is the universal aim. The idea of antiseptic rather than aseptic food is abhorrent to the medical profession. In the preservation of food, as in surgery, we should return to the fundamental principles taught by Pasteur. The use of such drugs can be but to cover up faulty methods or to make possible the use of open packages. In the preparation of all foods, we should prohibit the use of harmful coloring matter and all adulterants and we should interdict the use of any antiseptic drug whatsoever.

Your committee *recommends*:

1. That this Society respectfully requests the President of the United States and the Secretary of Agriculture to secure an amendment to the National Food and Drugs Act by which the use of antiseptic drugs in canned fruits and vegetables and in all preparations from fruits and vegetables designed for human consumption shall be prohibited, and,

2. That the inspection of the commercial food kitchens of the United States by government officials, for the purpose of insuring the use of sound materials, cleanliness of methods, and compliance with the law concerning adulterants and the use of drug preservatives, be made obligatory.

3. That the Congress be and is hereby urgently requested to institute an investigation with reference to determining in what additional particulars the Food and Drugs Act, as now construed and enforced, fails to afford adequate protection to the American people.

#### NATIONAL BUREAU OF PUBLIC HEALTH.

For several years this Society has been active in forwarding a movement to concentrate the various agencies of the national government at Washington having to do with the prevention of disease and the preservation of the public health into a single Bureau, to be presided over by a single responsible head who should be designated as Secretary of Public Health, or by some other title which would not necessarily demand recognition by a cabinet portfolio.

It is a pleasure to report that President Taft in his latest message has espoused this cause and reports cogent reasons why this important but long delayed step should be taken by the present Congress.

It is no longer necessary to pile up arguments in favor of this policy, but it is necessary to take advantage of the present opportunity and to strengthen the movement by bringing to bear upon Congress every influence that will encourage it to inaugurate this policy during the present session.

Your committee therefore *recommends*:

That this Society respectfully urges upon Congress and the Senate of the United States the organization under a single Bureau, to be known as The Bureau of Public Health, of all the offices and agencies now having duties in any way connected with the preservation of the Public Health, except only those offices having to do with the protection of the health of the Army and Navy.

With such a Bureau established it will be more easily possible to properly correlate the Public Health departments of the nation, the states and individual communities in the states. Such a correlation is desirable and necessary, for many of the problems confronting many local Boards of Health have a scope which is interstate and national in extent

#### STATE CONTROL OVER LOCAL BOARDS OF HEALTH.

Without waiting for the consummation of such a plan in its entirety, it seems to us desirable to secure in our own State a closer relation

between the local health authorities and the State Commissioner of Health. Local Boards of Health and health officers are at times influenced to neglect of duty by personal considerations. Charges of favoritism and of persecution are not uncommon, and the smaller the community the greater becomes the influence of personal consideration. At present the Public Health Law gives little control to the State Department of Health over local Boards of Health. In cases of inefficiency and neglect of duty on the part of local Boards the State Department of Health should have the power to act for the benefit of the people, as provided for in the enforcement of the laws in other departments.

#### SCHOOL OF SANITARY SCIENCE.

In several reports from this committee the desirability of bringing into the service of the Department of Public Health physicians especially trained for such duties has been presented, and this Society is on record as advocating a post-graduate course in Schools of Medicine leading to the degree of Doctor of Public Health, as is done in England and elsewhere. The demand of the people for such trained service is not yet strong enough to warrant Medical Schools in establishing such courses. Outside of cities of the first class, the medical officers of local departments having to do with public health questions receive pay which, in not one instance, is sufficiently great to support adequately a physician and his family. To secure some little familiarity with the various problems of health and sanitation it has been the custom of the State Department of Health to hold annual conferences at different points in the State for the purposes of considering the most important questions, such conferences lasting two or more days. These conferences have been broad and general and of very great usefulness. Last year State laboratories were opened to health officers at Albany, at the Quarantine Station at the port of New York on Staten Island, and in Cornell University at Ithaca, N. Y. In these laboratories health officers were encouraged to pursue a laboratory course of instruction occupying five days at certain periods during the year. A summer course of six weeks' work will be offered in these laboratories commencing in 1910, the details of which may be seen in the November report of the Department of Public Health. These laboratories are conducted without expense to the health officer, and are supposed to be located at convenient places to reach. It is expected that even so little of special work will be of some advantage to the individual health officers.

Your committee applauds the spirit of such instruction, but questions its value. The time is too short to give a man not already trained in

laboratory methods any real knowledge and skill. Even the six weeks' courses in the summer school could not give an untrained man the technical skill necessary for one upon whom one must depend for laboratory diagnosis. The Department of health in every county should have such an expert who is already trained and upon whose examination of all submitted specimens absolute dependence could be placed. The law has made this possible and there is no excuse for any county that does not take advantage of it. Such county laboratories should be under the supervision of the State Department of Health, and incompetence and neglect on the part of a county bacteriologist and pathologist should be corrected at once for the good of the service. To encourage the health officer who is a general practitioner to attempt to make laboratory diagnoses himself, is to retard the progress of preventive medicine and to hold up to suspicion and ridicule the work of the Department of Health.

Last year a bill was introduced into the Assembly and Senate to establish a School of Sanitary Science at Cornell University. It passed the Assembly but did not reach the Senate. Your committee favors a general bill, if one is needed, which would encourage every University having a College of Medicine to inaugurate a course leading to the degree of Doctor of Public Health.

Your committee recommends:

That this Society disapproves of the appropriation of State moneys for the establishment of any course in a University which is not solely under State control.

There never was a time when interest in preventive medicine was greater than now. It is the subject of frequent articles in magazines and of public addresses. The contributions for the scientific investigation of many diseases that affect the public were never so munificent nor so numerous. A true spirit of research is being fostered in many students of medicine in this country, and the conscience of the people is getting awakened. Despite our carelessness in the handling of infectious diseases the problems of which are already completely solved, like small-pox, typhoid fever, diphtheria and tuberculosis, there is a substantial gain. How much greater that gain might be to the State is known only to those who recognize the present difficulty in carrying into effect the beneficent provisions of the public health laws.

It is the mission of such a society as this to direct and encourage and sustain the efforts of all those upon whom this great duty is laid.

Respectfully submitted,

JOHN L. HEFFRON, *Chairman.*

ERNEST WENDE.

S. W. S. TOMS.

Syracuse, December 31, 1909.

## REPORT OF THE COMMITTEE ON LEGISLATION

### *To the House of Delegates:*

The Legislature for 1909 met in regular session January 6th and adjourned April 30, 1909.

During this time there were introduced about 225 measures relating to medicine, public health and sanitation.

Of this number the following passed both Houses and after receiving the Governor's signature, became laws:

An Act to authorize and provide for the erection and maintenance of an additional public hospital in the City of New York. Assembly Int. 619. Chapter 393.

An Act to amend the Greater New York charter, authorizing the Department of Health to assume exclusive charge and control of hospitals for the treatment of contagious, pestilential or infectious diseases. Senate Int. 726. Chapter 342.

An Act to amend the Greater New York charter, in relation to ambulance service. Assembly Int. 479. Chapter 395.

An Act to confer certain rights on the municipalities of Nassau County in respect to the water in such County forming part of the water supply of the City of New York. Assembly Int. 378. Chapter 350.

An Act to amend the public health law, in relation to the quarantine commissioners and the health officer for the port of New York, and repealing certain sections relating to the quarantine commissioners. Senate Int. 1026. Chapter 375.

An Act making an appropriation for the New York State Hospital for the Treatment of Incipient Pulmonary Tuberculosis. Senate Int. 423. Chapter 154.

An Act to provide for a tuberculosis hospital at the New York Soldiers' and Sailors' Home at Bath and making an appropriation therefor. Assembly Int. 657. Chapter 546.

An Act to amend the public health law, in relation to the establishment of hospitals or camps for the treatment of pulmonary tuberculosis. Assembly Int. 750. Chapter 171.

An Act to amend the county law, in relation to the establishment and maintenance of county hospitals for the care of persons suffering from the disease known as tuberculosis. Assembly Int. 1488. Chapter 341.

An Act in relation to the insane, constituting chapter twenty-seven of the consolidated laws. Assembly Int. 24. Chapter 32.

An Act to authorize the State commission in lunacy to proceed with certain improvements at the State hospitals for the insane. Senate Int. 90. Chapter 75.

An Act making appropriations for construction, additions and improvements at the State

hospitals for the insane. Senate Int. 1047. Chapter 462.

An Act making appropriations for repairs, renewals and betterments for the several State prisons, the Matteawan State Hospital for Insane Criminals and the Dannemora State Hospital for Insane Convicts. Assembly Int. 887. Chapter 460.

An Act authorizing the sale or exchange of the rifle range at Creedmoor for lands to be used as a site for the Long Island State Hospital, and reappropriating moneys heretofore appropriated for the Long Island State Hospital. Senate Int. 118. Chapter 77.

An Act making an appropriation for the Rome State Custodial Asylum. Assembly Int. 238. Chapter 151.

An Act to amend the State Charities Law, relating to the detention and discharge of inmates in the Rome State Custodial Asylum. Assembly Int. 803. Chapter 339.

An Act making appropriations for the Eastern New York State Custodial Asylum, established by chapter three hundred and thirty-one of the laws of nineteen hundred and seven, to be known hereafter as "Letchworth Village" Assembly Int. 1195. Chapter 455.

An Act to provide for the management of the Eastern New York State Custodial Asylum, to be known hereafter as the "Letchworth Village," and for the admission and control of inmates therein. Senate Int. 646. Chapter 446.

An Act making appropriations for the State charitable institutions, the New York State School for the Blind, the Elmira Reformatory, and the Eastern New York Reformatory at Napanoch. Senate Int. 469. Chapter 461.

An Act to amend the public health law, relating to the appointment of health officers. Assembly Int. 822. Chapter 165.

An Act to amend chapter one hundred fifty-one of the laws of nineteen hundred and five, entitled "An Act to amend chapter five hundred and seventy-seven of the laws of nineteen hundred and two, entitled 'An Act abolishing the office of coroner of the County of Erie, and creating the office of medical examiner, and prescribing its duties,' relative to medical examiner." Senate Int. 568. Chapter 189.

An Act authorizing the City of Buffalo to construct, equip and maintain a municipal hospital or hospitals for the exclusive care and treatment of persons affected with infectious or contagious diseases, except tuberculosis, to acquire lands therefor, and authorizing said city to borrow money for such purposes by the issue of bonds. Senate Int. 404. Chapter 115.

In accordance with the resolution passed at the last annual meeting of the Medical Society of the State of New York, "that the Committee on Legislation consult with the Counsel, and, if necessary, have passed by the State Legislature

an act allowing the Medical Society of the State of New York to change the time and place of holding the annual meeting," the following bill:

"An Act to amend chapter five of the laws of eighteen hundred and seventy-six, entitled 'An Act to enable the Medical Society of the State of New York to alter the time of holding its annual meeting,' in relation to power of House of Delegates," Senate No. 542, Int. 491, was introduced into the Legislature, passed by both houses and became Chapter 213 of the Laws of 1909.

A Bill to Regulate the Introduction of Medical Expert Testimony, Senate No. 661, Int. 509, was also, in accordance with the resolution, passed at the annual meeting, introduced into the Legislature, passed the Assembly, was amended and reported to the Judiciary Committee of the Senate, but was not passed.

The following bills, after a hearing held before the Judiciary Committee of the Senate, March 23d, were never reported out of Committee:

An Act to prevent cruelty by regulating experiments on living animals. Assembly Int. 571. Senate Int. 168.

An Act to prevent cruelty by conferring upon the Board of Regents of the University of the State of New York the power of supervision of experiments on living animals. Assembly Int. 544. Senate Int. 346.

The Committee on Legislation during the past year devoted its energies principally to assisting the Committee on Experimental Medicine in opposing the bills introduced to restrict animal experimentation.

The Chairman attended the public hearing in Albany and begs to thank the members of the Society and others who were present on that occasion for the valuable assistance rendered.

Respectfully submitted,

FRANK VAN FLEET *Chairman*.  
H. L. K. SHAW.  
ERNEST WENDE.

New York, December 31, 1909.

## REPORT OF THE COMMITTEE ON PRIZE ESSAYS

*To the House of Delegates:*

No prize has been awarded for many years; indeed, no prize essay has been written or offered to your Committee for adjudication. It is difficult to explain why that should be so. Many of the papers presented to these, our open meetings, are of superior quality, and many exhibit both learning and industry. Now, the awarding of a prize by a body like the Medical Society of the State of New York involves a public recognition of no mean or-

der by the very peers of the writer. Besides, there is a pecuniary reward connected with it. The amount, it is true, is comparatively small. The Merritt H. Cash Prize Fund of \$100 should be awarded every three years, and the Lucien Howe prize of \$100 every two years. But the publicity given to a scientific or literary achievement should please or satisfy the most ambitious. Your Committee is unwilling to believe that the applause, deserved or not, but always forthcoming from appreciative friends, well wishers or sympathizers after the reading of any paper should be more welcome than the praise bestowed on a successful paper by responsible and cautious judges who pronounce their verdict after careful study and deliberation.

Your Committee cannot believe, though the pecuniary reward were doubled or trebled, that there would be more eagerness or competition. Whoever will not appreciate the extensive reputation, conquered by a successful essay, will not be influenced by a small sum of money. That is why your Committee cannot believe that the old methods of rewarding a good paper merely because, or after it has been handed in according to certain rules of secrecy and punctuality, are still estimated according to their former value. Perhaps this Society may evolve another plan, and direct its future prize committees to single out, annually or bi-annually, for public commendation and reward the—in their unanimous opinion—best, or most original, or most instructive medical paper or book which has been published before the month of December preceding the Annual Meeting by a fellow of the Medical Society of the State of New York.

Respectfully submitted,

A. JACOBI,  
*Chairman*.

New York, December 31, 1909.

## REPORT OF THE COUNSEL

*To the Officers, Council and Members of the House of Delegates of the Medical Society of the State of New York:*

GENTLEMEN—I have the honor to transmit to you herewith my report of mal-practice defense for the year 1909.

No year in the history of organized mal-practice defense has been so fruitful of results in the stamping out of blackmailing cases as the present one. During no year has your Counsel met with such enthusiastic support by the medical fraternity as during the one just past. More cases have been tried than in any other year, and while it is true that the number of cases brought has slightly increased, yet that is easily accounted for by the fact that mal-practice defense has during the past year become generally known in the

profession, and your Counsel has been called upon for that reason to assist more members whose cases in other years may have gone to other attorneys, or may have been settled. The fighting spirit and determination not to be blackmailed by unscrupulous patients has manifested itself on many occasions, all of which is most satisfactory.

Eighteen cases have been actually tried by your Counsel, but he has had the misfortune to lose one case so far as a verdict is concerned, and in this litigation a new trial has been asked for upon errors committed by the Trial Justice, and which has been held in abeyance for several months. Your Counsel has absolute confidence in the ultimate success of this case also.

The reliance which members of the profession have shown in the Counsel of the Society in matters pertaining to their general welfare, as evidenced by letters asking for advice and counsel in various directions, has been most gratifying, and that the State Society now really means something to the members of the profession in this State is not only appreciated by the members, but they are showing their interest by actually making use of their privileges.

It will be satisfactory for the members of the Society to know that during the past year several State Societies have endorsed and adopted the plan of organized mal-practice defense conducted by the State Society, and I am reliably informed that there are now nineteen States successfully defending their members.

I desire to thank publicly the following physicians who have volunteered their services on behalf of their brother members, and have materially aided in the defense of mal-practice suits tried:

Dr. John Allen Wyeth, Dr. William A. Moore, Dr. Frank W. Sears, Dr. Henry Flood, Dr. J. Franklin Barnes, Dr. Brooks H. Wells, Dr. Frank W. Hinkle, Dr. F. Park Lewis, Dr. George W. Cott, Dr. Edward J. Meyer, Dr. Edgar H. Douglas, Dr. Dayton L. Kathan, Dr. Matthew D. Mann, Dr. Peter W. van Peyma.

The following is a list of new cases begun during the year 1909:

(1) This is an action brought in the United States Circuit Court for \$5,000, the first one brought in that Court against any physician in this State, which your Counsel has been called upon to defend. The claim for damages arose out of alleged neglect on the part of the physician to remove glass claimed to have been allowed to remain in the arm of the patient, after her having been injured by being cut by a broken bottle. The defendant in this action was called in in an emergency and only saw the patient on one occasion. The charge of mal-practice seems to be absolutely unfounded.

(2) This is an action brought against two physicians for \$50,000, in which was involved a fracture of the wrist and a fracture at the shoulder. Your Counsel has only been called upon to actively defend one of the two doctors. It appears that this particular defendant had absolutely nothing to do with the care of the case, other than to administer the anæsthetic, he having referred the case to a specialist for care and treatment. There is absolutely no liability as far as Counsel can see, which can be predicated against this defendant.

(3) This action was brought by a young woman, in which it is claimed that she went to the doctor's office for treatment for some malady requiring medicine, but while there she claims that she was assaulted by the doctor, and that incident to the assault he surgically operated upon her eye, in removing a birthmark. This is really not a mal-practice action, but one rather of assault, yet I have felt that so long as the doctor asked for help it should be given.

(4) This is a case in which two actions have arisen out of the same transaction. The patient sued the defendant, claiming that he had administered an overdose of calomel, and that the patient had been made sick thereby. After the answer had been served in this action the patient died of Bright's Disease, and an action has now been brought in the name of his widow as administratrix of his estate, in which it is claimed that the defendant in the action caused the death of the patient. No connection between the first cause of action and the second can be established, and should the action be brought to trial it will be quickly disposed of.

(5) This is an action for \$50,000 brought by a young woman against a very well-known surgeon, in which it is claimed that the physician was incompetent, and that he was careless and negligent in operating, and did operate without the consent of the patient. A hospital is joined with this defendant, which is represented by other attorneys, and your Counsel has been called upon simply to defend the doctor. This case has been called to a Referee and hearings will be held in several Counties of the State, in order to convenience witnesses for both parties.

(6) This action was begun by a mother as administratrix, against the defendant to recover for the death of two children, and two different actions were simultaneously begun. The alleged mal-practice is based upon a claim that these two children, out of a family of five, had died from malignant Scarlet Fever. The defendant in the action had saved three of the children, but had lost two. As the case was about to be reached for trial the defendant in this action died suddenly. It was, in the judgment of your Counsel, a typical case of blackmail, and with no chance of recovery by the plaintiff in either action.

(7) The cause of action alleged in the complaints in this action, two in number, was based upon mistreatment of an injured ankle of one of the plaintiffs. One of the actions is brought by the wife, claiming personal injury, and the other by the husband, claiming loss of services and companionship. The statement of the defendant physician shows conclusively that every possible proper attention was given to this patient, and that she has none, nor has her husband any real cause for complaint. This case will probably be tried at an early date.

(8) Operation upon an infant for adenoids resulting in the death of the infant is the base of the action brought by a mother against two physicians for \$25,000. Your Counsel represents one and an Insurance Company the other. I believe that the other defendant is not a member of the State Society. The facts alleged in the complaint are that the child was given a general anæsthetic, the operation was carefully performed, but within five or ten minutes after the operation the child succumbed, and although all methods of resuscitation were tried, they were futile. Examination was made of the child before operation, and no indication of heart weakness or any other reason for not administering a general anæsthetic was disclosed.

(9) A woman brings this action claiming \$10,000 for injury to an eye, in which the defendant, a well-known specialist, gave under direction of a nurse, certain eye-drops to be used which complainant claims were improper, and claims further that the eyesight was totally destroyed by this carelessness on the part of the defendant. Defendant's statement discloses perfectly proper treatment. In this case your Counsel is only called in as Counsel for the doctor, as the case is about to be tried. Just what part in the trial will be



taken by the State Society, I have not yet been informed.

(10) This is an action brought by a woman, and was the result of an attempt by the doctor to collect his bill for services incident to the treatment of a fracture of her forearm. This was a deliberate attempt on the part of the woman to avoid the payment of her bill, and when the action was tried she failed to appear even, and a judgment was secured for the full amount of the doctor's bill.

(11) The basis of this action was claimed carelessness on the part of the doctor in a mastoid operation, where facial paralysis supervened, and naturally, the exhibit in the case would be somewhat distressing. There is nothing to base the charge of malpractice upon, except the fact that there is present, as the complaint alleges, a deformity of her features and general impairment of her health. The demand in this complaint is \$50,000, and the operation was without doubt, carefully and scientifically performed.

(12) A woman brings this action to recover for alleged malpractice, in that the attending physician who was called upon to deliver the woman of child, was careless. The facts in the case demanded the calling in of a surgeon, owing to the fact that there was no progress in the delivery of the child, and incident to the operation the uterus was lacerated and immediate surgical intervention alone saved the life of the patient. No criticism could have possibly been made of either the obstetrician, who was the defendant in the action, or the surgeon who saved the woman's life. The case was all ready for trial, but at the last moment was abandoned by the plaintiff.

(13) Ten thousand dollars was demanded in this case by reason of the unsatisfactory result as far as the patient was concerned, of a fractured femur. Answer has been served in this case, and it has been noticed for trial by both sides. The treatment accorded was the ordinary and proper treatment, and it is impossible to conceive that any expert can be found who will attempt to disprove the fact that proper attention was given.

(14) This case arose by reason of the doctor attempting to collect his bill, and the malpractice feature was set up by way of a counter-claim in which the patient asserts that he was improperly treated by defendant for fracture of the elbow joint. It was no doubt an attempt to defeat the doctor's bill without the slightest hope of proving the malpractice. On the eve of trial the patient abandoned his contention.

(15) An Italian woman, in reply to a doctor's suit for his bill, sought to counter-claim damages for an operation performed on her jaw. This claim was pressed to suit, on the one hand by the doctor to recover his bill, and the woman insisting that she had the counter-claim. Suit resulted in the dismissal of the claim for malpractice and a verdict for the doctor's bill in full.

(16) This action was based upon a claim that the surgeon, in attempting to X-ray the plaintiff's kidney, produced an X-ray burn. Your counsel has gone over the matter carefully with several experts on the subject, and it is very clear that the complaint cannot be sustained. Every precaution was taken, and indeed, it is uncertain whether or not the defendant's treatment had anything to do with the burn, if such it was.

(17) This is an action wherein, in answer to a doctor's suit for his bill in a confinement case, the woman sought to recover damages for personal injury, and the husband sought to recover damages for loss of services. The attorney who brought the action for the doctor's bill had charge of the case, and I am informed that the doctor was paid his bill in part and the matter adjusted to suit him, and the malpractice phase was abandoned absolutely. This was a clear case of blackmail.

(18) This was an action wherein a doctor sued for his bill in a Justice's Court through a local attorney, and your Counsel was consulted. A counter-claim for

\$500 was set up, wherein blood poisoning is alleged to have supervened. Your Counsel has not been advised of how this case has been disposed of by the local attorney.

(19) A woman brings this action upon which she claims \$50,000. The action is two-fold, one upon the ground that the doctor improperly and carelessly performed the operation on the mastoid bone, and the other basis of her claim is that she was induced to have the operation performed by misstatements of the doctor as to the dangers incident to such an operation. The latter proposition, so far as I am concerned, is new, and it raises a very serious question for surgeons, especially to consider in determining how far they are bound to go, in detailing to the patient all of the dangers of surgery. This case had been proceeding about four years before your Counsel was called into it, and on the eve of trial, was notified and was expected to try the case. The exhibit in the case showed facial paralysis, and the testimony developed the fact that nerve grafting had been attempted but failed. The jury in this case disagreed and the case will probably be re-tried.

(20) A woman brings this action against a Dispensary and three different physicians together. The complaint was based upon treatment in a Dispensary, and the charge of malpractice grew out of the fact that the woman, being an ignorant foreigner, had taken internally some medicine prescribed for external use only. No serious harm resulted. It transpired in the defence of the action that none of the doctors sued jointly with the hospital had ever had anything to do with the patient, and as the summons and complaint were inadequately drawn, your Counsel had an opportunity on a motion made by the plaintiff for leave to amend the summons, to compel either the payment of costs or discontinuance against all three of the physicians. The attorney did not feel that he had sufficient case to pay the costs, and the action was discontinued upon an order entered by your Counsel, and the case was thus terminated.

(21) A mother and child brought two actions against a surgeon, in which it was claimed that a fracture of the leg was improperly treated. In this case the attorney does not seem to feel that he has sufficient cause of action to go to the expense of putting his case on the calendar, and has not filed note of issue or served notice of trial. Without doubt the doctor used every approved and proper method in reducing the fracture, and the result was as good as could be hoped for.

(22) This action was brought by a husband to recover damages for the death of his wife, wherein the complaint charged unlawful abortion by the physician in administering Fluid Extract of Ergot improperly. Your Counsel was called into this case to assist the attorney trying it, and examine part of the witnesses and otherwise assist at the trial. The trial of this action resulted in a verdict for the defendant.

(23) This action involved the question of treatment for throat trouble complicated with asthma, and the only allegation with reference to the case is that it was improperly treated. There is absolutely no foundation in fact for the assertions in the complaint, and no reason to suppose that there is any hope or expectation on the part of the plaintiff to recover before a jury, but simply a desire on the part of his attorney to get a settlement. That contingency is extremely remote.

Your Counsel began the defense of malpractice actions on September 1, 1900. Since that time over two hundred and fifty cases have come before him, and of that number one hundred and thirty-eight have been actually tried, none finally lost and one now on appeal. Not one dollar of damages has ever been paid. This is a result not even hoped for, and the success of organized malpractice defense in the hands of

State Societies has been demonstrated. It is interesting to note that during the past year a great majority of the cases begun are by women plaintiffs. It is difficult to determine just what this means, unless it is that the attorneys bringing them hope to enlist the sympathies of a jury, irrespective of whether or not there is merit in the patient's claim.

During the last year the work of the Counsel has grown to such enormous proportions, that only the experience gained in preceding years has made it physically possible to cover the ground necessary and to successfully prosecute the work.

Your Counsel desires to express his deep feeling of appreciation for the many courtesies extended by those of the medical profession with whom he has come in contact. Without their active and earnest co-operation and assistance, the difficulties of the task would be insurmountable, and the satisfactory results well nigh impossible.

All of which is respectfully submitted.

JAMES TAYLOR LEWIS,  
*Counsel.*

New York, December 31, 1909.

## REPORT OF THE COMMITTEE ON THE REGULATION OF THE INTRODUCTION OF MEDICAL EXPERT TESTIMONY

*To the House of Delegates:*

Continuing the report of your Committee, which was made to the House of Delegates at the last annual meeting, your Committee begs leave to report:

The House of Delegates on January 26, 1909, adopted a resolution continuing the Committee as follows:

"Resolved, That the report of the Special Committee appointed to confer with the Committee representing the New York State Bar Association, to consider and report regarding the best means of curing the present evils of expert testimony, be adopted and the Committee continued and empowered to aid in securing the enactment by the Legislature of the bill presented."

The bill as recommended by the Joint Committee of your Society, the Homœopathic Society of the State of New York, New York Academy of Medicine, and the New York State Bar Association, was introduced in the Assembly by Mr. Fowler, March 9, 1909, numbered, 1,065. The same bill was introduced in the New York State Senate at the same time.

On April 6, 1909, the Judiciary Committee of the Assembly gave a public hearing on this bill which was attended by representatives from the Society of Medical Jurisprudence of New York City of their own volition; by representatives from the New York State Bar Associa-

tion, including such eminent men as the Hon. Ansley Wilcox, of Buffalo; Hon. A. T. Clearwater, Chairman of the Bar Association Committee; Dr. E. D. Fisher, and the chairman of the committee representing the Medical Society of the State of New York.

For copy of bill see April, 1909, State Journal of Medicine, page 174.

Strong speeches were made in favor of the bill by each of the gentlemen representing the different committees.

The bill numbered 1065-2061, was reported out of the Judiciary Committee and was passed by the Assembly:

### AN ACT TO REGULATE THE INTRODUCTION OF MEDICAL EXPERT TESTIMONY.

*The People of the State of New York, represented in Senate and Assembly do enact as follows:*

Section 1. Within ninety days after this act shall take effect the Justices of the Supreme Court assigned to the appellate divisions thereof in the several departments shall designate at least ten, and not more than sixty, physicians in each judicial district who may be called as medical expert witnesses by the trial court or by any party to a criminal action in any of the courts of this State, and who when so called, shall testify and be subject to full examination and cross-examination as other witnesses are. Any designations may at any time be revoked without notice or cause shown, and any vacancy may at any time be filled by the justices sitting in the appellate divisions.

Sec. 2. When so directed by the trial court, witnesses so called shall receive for their services and attendance such sums as the presiding judge may allow, to be at once paid by the treasurer or other fiscal officer of the county in which the trial is had.

Sec. 3. This act shall not be construed as limiting the right of parties to call other expert witnesses as heretofore.

Sec. 4. This act shall take effect September 1st, 1909.

This bill modified our original bill, in that it made the law apply only to expert testimony in criminal cases. The consensus of opinion in the Judiciary Committee being that it would be impossible to pass the bill covering civil cases, because of the opposition the bill would receive from attorneys practicing before the Bar.

On the 5th day of January, 1910, a meeting of the Joint Committee representing the New York State Bar Association, the Medical Society of the State of New York, the Homœopathic Society of the State of New York, the Society of Medical Jurisprudence of New York City, and the New York Academy of Medicine, was held in the rooms of the Bar Association in New York City.

Present—representing the New York State Bar Association—Hon. A. T. Clearwater.

Medical Society of the State of New York—Dwight H. Murray, Chairman; E. D. Fisher and John A. Wyeth.

The Homœopathic Society of the State of New York—John W. Wilson, Chairman, and Wm. B. Butler.

Society of Medical Jurisprudence of New York

City—Mr. Boston, Mr. Sutro and Dr. C. A. Van Ramdohr.

After a full discussion the following draft of a bill, to be presented at the present session of the Legislature, was unanimously adopted:

AN ACT

TO REGULATE THE INTRODUCTION OF MEDICAL EXPERT TESTIMONY.

*The People of the State of New York, represented in Senate and Assembly, do enact as follows:*

1. Section 1. Within ninety days after this act shall take effect at least a majority of the Justices of the Supreme Court assigned to the appellate divisions thereof in the several departments shall designate at least ten and not more than one hundred and twenty physicians in each judicial district any of whom may be called as medical or surgical expert witnesses by the trial court or by any party to a civil or criminal action in any of the courts of this state, and who when so called shall testify and be subject to full examination and cross-examination as other witnesses are, such examination to include examination as to their competency. Any designation may at any time be revoked without notice or cause shown, and any vacancy may at any time be filled by the Justices sitting in the appellate divisions.

Section 2. When so directed by the trial court, witnesses so called shall receive for their services and attendance only such sums as the trial judge presiding in such case may allow, to be at once paid by the treasurer or other fiscal officer of the county in which the trial is had.

Section 3. This act shall not be construed as limiting the right of parties to call other expert witnesses as heretofore.

Section 4. This act shall take effect September first, nineteen hundred and ten.

At a future time after the trial of a law of this kind, amendments may be made so that the law may be made broader and more ideal.

We feel very hopeful, particularly as this is the first time in the history of the Society that the matter has gone as far toward success in the Legislature as it did last year.

All of which is respectfully submitted.

DWIGHT H. MURRAY, *Chairman*,  
A. T. BRISTOW,  
JOHN A. WYETH,  
EDWARD D. FISHER.

December 31, 1909.

## REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

*To the House of Delegates:*

The Committee on Scientific Work begs to submit the following report for the year ending December 31, 1909:

The annual meeting of 1909 was held in Albany, January 26th and 27th, and a full and complete scientific program, which was well discussed, was presented to the members. Reports of the discussion and the papers have been printed in full during the past year in the *New York State Journal of Medicine*. Preparations are well under way for the meeting of 1910, and

according to the resolution of the Council this meeting will last only two days, Tuesday, January 25, and Wednesday, January 26, 1910. The preliminary program was printed in the December, 1909, issue of the *Journal*, page 519.

Respectfully submitted,

L. H. NEUMAN,  
*Chairman.*

December 31, 1909.

## REPORT OF THE COMMITTEE ON EXPERIMENTAL MEDICINE

*To the House of Delegates:*

In behalf of the Committee on Experimental Medicine, the undersigned have the honor to report as follows for the year 1909:

At the meeting of the House of Delegates, held at Albany on January 25, 1909, resolutions were unanimously passed urging the members of the Society to use every legitimate means to defeat every measure which shall threaten to hinder experimental medicine by restricting the prudence of qualified workers in this field.

In pursuance of this act of the House of Delegates, the Committee on Experimental Medicine, in co-operation with the Committee on Legislation and with public-spirited men throughout the State, labored successfully to prevent the passage by the Legislature of 1909 of two bills, intended to regulate experiments on living animals. Each bill sought to impose restrictions, which were against the public welfare, upon the performance of scientific observations. The hearing upon both bills was held before the Judiciary Committee of the Assembly on March 23, 1909, and before the Judiciary Committee of the Senate on March 24, 1909. At both of these hearings arguments were presented in favor of the bills by their friends and in opposition to the bills by members of the Committee on Experimental Medicine and others. Subsequent to the hearings, the Assembly Committee decided not to report either bill, while the Senate Committee took no action. This result represents a greater victory than that of the previous year, when the Assembly Committee took no action whatever pro or con, while the Committee of the Senate reported one of the two bills to that body.

As an aid in carrying on the above work, the Committee has caused to be prepared and published twenty brief articles in the form of leaflets, dealing with the subject of scientific experiments on living animals. These present the main facts regarding animal experimentation, its methods, its value in the investigation of specific diseases and of physiological facts, its ethics, its legal aspect in the State of New York, and the opinions of eminent authority

regarding it. These leaflets have undoubtedly played an important part in the work of the Committee. They have received wide notice in the press and have been in demand in other States and in European countries, and the authors and editors who have given their services in preparing them have made effective contributions to the successful defense of medical research and teaching.

There has already appeared in the public press the outlines of a bill in opposition to animal experimentation, which is to be introduced into the Legislature of 1910, and is even more objectionable than the bills of previous years. The Committee believes that the Society should rigidly maintain toward such attempted legislation its customary attitude, which has proved eminently successful in the past.

The Committee has accepted with much regret the resignation from the office of its Secretary of Dr. John G. Curtis, who has held the position since June 21, 1883. Through a period of more than twenty-six years as Secretary, Dr. Curtis has performed most effective service in the interests of freedom in medical research and teaching, and deserves the thanks of the Society and the medical profession.

Respectfully submitted.

JOSEPH D. BRYANT, *Chairman*,  
J. S. THACHER, *Secretary*.

December 31, 1909.

## REPORT OF THE COMMITTEE ON ARRANGEMENTS

*To the House of Delegates:*

The Committee on Arrangements has the honor to submit the following report of the expenses of the Committee which have been paid by the Medical Society of the State of New York for the year 1909:

THE MEDICAL SOCIETY OF THE STATE OF  
NEW YORK IN ACCOUNT WITH THE  
COMMITTEE ON ARRANGEMENTS.

Printer .....	\$2.00
Pay for pages.....	35.00
Stenographer, postage, stationery, etc....	5.00
Music and Musicians' dinner.....	42.00
Signs .....	3.00
Calcium Light Co.....	12.00
Carriages for invited guests.....	4.50
Complimentary dinner tickets for guests.	27.00

\$130.50

Expenses of the dinner paid by the Society from sale of dinner tickets, \$354.00.

W. J. NELLIS,  
*Chairman*.

December 31, 1909.

## REPORT OF COUNCILOR OF THE FIRST DISTRICT BRANCH

*To the House of Delegates:*

During this year the work of the Society has been carried along in a most commendable manner by the Society Officers of the different County Societies, and I can only urge that they be instructed how best to keep up the interest of the work and the taking in of the new men coming into the various districts. There has been no material change in the membership in the County Societies; the Medical Society of the County of New York shows a membership, December 1st, of 2,331, and during the year there have been elected 132 members; lost by death, 23; by resignation, 8; dropped for non-payment of dues, 61, and 4 members have been transferred to the Associate list. The meetings have been well attended and much interest displayed in the scientific portion of the program.

County of Rockland Medical Society has a total membership of 34, and during this past year 4 new members have been elected, and 2 have been dropped for the non-payment of dues. The interest shown in the meetings held in this County has been most marked, as there has been, at times, practically a full membership present.

The Medical Society of the County of Westchester has a membership of 198, while last year the membership was 192, showing a total gain of 6.

The Medical Society of the County of Orange has a total membership of 85. During this past year 3 new members have been added; there has been 1 death and 1 member dropped for non-payment of dues. The interest shown by the members in the Medical Society of the County of Orange has not been as marked as it should have been, but we hope for better results next year when the new plan of holding the meetings is put in operation.

The Medical Society of the County of Dutchess shows but little change in the membership. Last year's membership being 105 and this year's membership being 102. The meetings have been well attended and great interest shown in the work. The men of the lower end of the County have not attended as well as they might, but this may be because of the fact that it is rather hard to get to the place of meeting at times.

Respectfully submitted,

CHARLES E. TOWNSEND,  
*President First District Branch*.

Newburgh, December 31st, 1909.

## REPORT OF COUNCILOR OF THE SECOND DISTRICT BRANCH

*To the House of Delegates:*

I herewith present my report as President of the Second District Branch for the year 1909. The County Societies in this District are all active and doing good scientific work.

The annual meeting of the organization was held on the sixth of November, in Brooklyn.

The election of officers resulted in the selection of Dr. G. P. Jessup, of New Dorp, S. I., as President, and Dr. V. A. Robertson, of Brooklyn, as Secretary. An excellent scientific program was provided, consisting of a symposium on the newer methods of diagnosis. Five short papers were presented. The attendance was fairly good. The sentiment throughout the Second District is harmonious and loyal to the State Society.

Respectfully submitted,

ELIAS H. BARTLEY,

*President Second District Branch.*

Brooklyn, December 31st, 1909.

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## REPORT OF COUNCILOR OF THE THIRD DISTRICT BRANCH

*To the House of Delegates:*

The Third Annual Meeting of the Third District Branch of the Medical Society of the State of New York, was held at Hudson, N. Y., October 5, 1909.

In point of attendance the meeting was not numerically what it had been expected to be. That the rural districts and the smaller cities were not better represented may be explained by the fact, that all along the river, one and all were taken up with the Hudson-Fulton Celebration. The coincidence of a professional gathering and a popular jollification did not work exactly in favor of the former. This excuse cannot, however, be formulated as to the large cities, of which it is difficult to see why they were so inadequately represented as to number, though some of their best representatives were present. For their fair name and to set a good example, they should have had delegations not only select, but large. And in view of the importance which the District Branches are supposed to acquire in the affairs of the State Society, their abstention is all the more to be regretted as it was not easily justified. Indeed, big cities like Albany and Troy, with numerous and important medical societies and clubs, had a reputation for scientific enthusiasm to sustain, and this they utterly failed to do.

Aside from that, the meeting was from every standpoint a very successful one.

The forenoon was devoted to a visit to the New York State Training School for Girls. The visitors came in two groups, one led by Dr. Wilson, the other by Dr. Shaw, both managers of the Institution. They were first introduced to Dr. Bruce, the Superintendent, Dr. Bingham, Resident Physician, and the Assistant Superintendent, Miss Hewitt, and then invited to inspect the various departments.

This inspection was most entertaining and instructive. It was a different feature from the clinical sessions in the hospitals of the large cities, but not less attractive and profitable. To many it was a real revelation, and to all an object lesson of unusual interest. Few had any idea of what the Institution was. An Institution, the only one of its kind in the State, one which is an expense to nobody but the State, which can accommodate a population of 300, but which properly should reach a maximum capacity of 500; built on the cottage system, the different buildings being elegantly scattered over finely located and well-laned grounds, with a clear view of the picturesque Hudson below and the romantic Catskills in the distance.

This cottage system, besides its usual advantages, offers in this particular instance the opportunity for a classification of the inmates according to their standard in merit and behavior. Every cottage is moreover truly a home by itself; it accommodates about thirty people, has its own administration, and is fitted out for all purposes of housekeeping. In other words, each cottage is practically independent and aims to reproduce the process, method and spirit of an ordinary home. "This homelike plan works splendidly," said Dr. Wilson, as we walked leisurely from cottage to cottage, in the exhilarating atmosphere of an ideal autumn day. "It is a great incentive for the pupils to look up to ideals which before had never dawned upon their minds." The cottages are disposed on the north and south sides of an irregular oblong square, one end of which is occupied by the Administration Building and Chapel, the other by the School and Industrial Building, even with, in a remote corner, the here inevitable Disciplinary cottage. One of the cottages is equipped as a Nursery where the babies born on the estate live with their mothers, and another, just opposite, as a Hospital, the ill human flesh is heir to being here met with as elsewhere, and being in need of as kind a treatment. In this hospital were to be particularly noted the Solarium and Deck used day and night nearly all the year, and the Operating Room, small but thoroughly up-to-date and as pleasing to the eye as a gem.

In the School Building, the visitors were shown the work of the pupils and the pupils at work; the different grades in school teach-

ing up to the eighth grade; the three grades of sewing classes, the laundry class and the cooking class; large classes being everywhere busy, with teachers at the post of duty. Through the courtesy of our escort, in every section, informations and explanations were cheerfully given. Many were much taken up with the exhibition of plain sewing as well as of fine basket and needlework, but particularly with the making by the pupils of complete suits of wearing apparel, such as are worn on parole or on graduation. Others looked more interested in the models of penmanship and composition, others in the neat hand-done laundry-work, but all had but one word of praise when they reached the Cooking Department, where it was explained that while the pupils were instructed in plain and practical cooking, they were also inculcated with the principles of hygiene and asepsis in preparing, cooking and serving food, the properties of foodstuffs and the propriety of serving them well and using them right.

This was obviously demonstrated a little later on when all sat down in the dining-room of the Administration Building to a dainty and delicious luncheon, every part of which had been prepared by the cooking class and was now served by a corps of pupil waitresses, not inferior in point of style and decorum to the trained staff of the best hotel. This luncheon was unquestionably a most pleasant and enjoyable feature, and it cannot be here acknowledged with too many thanks for the spirit of fraternity and the unassuming courtesy with which it was tendered by the Superintendent, Dr. Bruce. Indeed, the hospitality we were the recipients of on this occasion, went beyond all expectation, and will cause our visit to remain in our minds as a most charming and un-fading recollection. Either in presiding at the table or exercising a necessary supervision, by the sole favor of their presence, our lady-colleagues gave involuntarily to our otherwise stern professional gathering a note of feminine grace which could not be but highly appreciated.

All is not work in the Institution, that is, hard manual labor or arduous mind training. There are adequate provisions made for recreation, out-of-door life and occupation, for the physical, moral and religious development of the pupils. As we were again wandering on, "See here," said Dr. Wilson, pointing to the beautiful lawns, play-grounds, flower beds, hot-houses and vegetable gardens, already adorned with the variegated colors of fall foliage, "this is all done by the pupils. It forms part of our educational program. Health of mind and body are both looked after. *Mens sana in corpore sano* is for the Institution a motto as sacred as it was for ancient Rome.

And let me say also that the management has for policy to minister with loyalty and impartiality to the moral and religious wants of the inmates just as much as to their proper physical growth and training. In the Chapel, every Sunday afternoon, services are held, conducted in turn by ministers of various faiths, on general moral topics suitable to all, and on Friday afternoons special religious instructions are given to classes, for which the girls are divided into groups according to the faith which they profess, a teacher being provided from outside according to each group. The plan so far has been operated with utmost satisfaction. And, you know, this is not all. In the basement of the Chapel, every afternoon after school hours, there are gymnastic classes and active games, and four times a week a large singing class." That the pupils receive splendid training in *Vocal Music* and in *Physical Culture*, we were soon to learn to our greatest delight. After luncheon, while those ponderous men, our delegates, were meeting in session in the Managers' room and deciding the future fate of our District, if not the destiny of the whole State Society, we, of the rank and file, were gracefully invited by Dr. Bruce and her assistants to witness a *Military Drill*, after which we were treated to a *Sacred Concert*. And well it was that we speedily accepted, for these exercises proved to be the Attraction of our visit. None had imagined that with the material in hand, such results could be attained either in calisthenic evolutions or in harmonized singing. Truly, it was a treat. And all then remembered what Dr. Shaw had said that he had this "surprise" in store for us!

It may be that I have over dilated on this subject considering what in the eyes of many this report should be. Of such possibly need was not and certainly would not have been, had the attendance been larger, but it was not, and it is to be regretted that the profession generally knows so little about this kind of institution and did not avail itself of this rare occasion of knowing more. As we departed for the scientific session, it was with a keen sense of pleasure and gratification that we extended thanks to the Superintendent and managers for their splendid reception.

The rendezvous for the afternoon session was at the Court House, a handsome and very artistically designed structure, inside as well as outside, which would be a credit even to more pretentious cities. The hall in which the meeting was held is particularly well adapted for such a purpose. The scientific program consisted, besides the President's address, of nine valuable papers from representative members of the County Societies comprising the Third District. The reading of the different

medical and surgical topics was listened to with an attention which proclaimed their intrinsic value, and elicited discussions which, though necessarily brief, were at times quite animated. The central feature of the program was certainly the fact that Dr. Mason, professor of Chemistry at the Rensselaer Polytechnic Institute, had consented to address the meeting. Dr. Mason gave a most comprehensive talk on Typhoid Fever and Water Purification, two subjects which continue to be among the most important subjects that can be discussed, and which the profession is unfortunately constantly in need of learning something about, inasmuch as they never cease to occupy and preoccupy our attention, both as physicians and citizens. Dr. Mason is an acknowledged authority on these subjects, and one to whom we can safely turn for vital information. His address, which he regretted not to be able to illustrate with lantern demonstrations as he had intended to, was heartily applauded, proof that his kindness in giving our session the valued contribution of both his presence and his knowledge, was deeply felt and highly appreciated.

At the conclusion of the scientific program, special exercises were held in memory of Dr. John T. Wheeler, of Chatham, first President of this District Branch, and First Vice-President, at the time of his death, of the Medical Society of the State of New York. These exercises were very impressive. Several addresses were delivered and resolutions passed paying high tribute to the sterling worth of Dr. Wheeler, as a physician, a citizen and a man. They formed a deserved and fitting memorial and have been prepared for publication in extenso in the State Journal.

Although the papers were intended to be brief, and were brief, the program could not be exhausted for want of time, and three papers had to be read by title. This was but a repetition of what occurred last year in Troy and two years ago in Albany, and which prompted Dr. Gordinier to suggest in his year report that "two days be devoted to the Annual Meeting the next time the District Branch meets in any large medical centre." The suggestion is decidedly a good one, and as the Annual Meeting next year takes place in Albany, it seems but proper that Dr. Gordinier's idea be recalled here, insisted upon, and fully endorsed. A two days' session would no doubt meet with the approval of a great many; a whole clinical or hospital day, and a whole scientific day, with the evening between spent in a social way, in a good old way, from which would be banished elaborate after-dinner speeches; informal talks, and one-side chats, in which old acquaintances are renewed, neglected friendships rejuvenated, new ties formed, offering a much better stimulant to a generous spirit of fraternal association.

That a large number of regular physicians are practising in the District who are not but should be members of our County Societies, is a fact well worthy of consideration. To stimulate their appreciation of the benefits to be derived from joining the Society of the County in which they live, the little "tracts" issued this year by the State Society as "Application Blanks" and setting forth so graphically the value and importance of Society membership, have been diligently sent broadcast throughout the whole District. With what effect is not yet known. So far, however, as could be ascertained, the Societies constituting this District Branch are in a flourishing and vigorous condition, holding regular meetings and doing good work. Albany and Rensselaer County Societies have had unusually active sessions; twice in Albany the meetings were combined meetings in which the questions treated (Hygiene and Tuberculosis) made it desirable to associate the laity with the medical fraternity; twice also in Troy the meetings assumed a character of unusual importance, men from Albany, New York and Yale, noted for their special work, having been invited to deliver lectures, one of them with screen projections. On both occasions the attraction was such that the assembly-room was crowded to the doors.

The last act of the House of Delegates was to legislate its officers out of office by electing their successors for the ensuing year. Dr. Andrew MacFarlane, of Albany, was chosen President, and Dr. Mark O'Meara, of Kingston, Vice-President; Drs. H. L. K. Shaw and S. V. Whitbeck were continued in office as Secretary and Treasurer respectively. The next Annual Meeting will be held in the city of Albany, the first Tuesday in October, 1910.

Were I asked whether the effectiveness of Annual Meetings, held by the Profession of the State of New York in several Districts, is really demonstrated or whether their value is nothing more than problematic, the medical press furnishing ample means of producing himself to whoever has something to say or a communication to make, I would readily answer:

In Medicine there is no absolute truth, no indefectible criterion. We will reach nearer to the pivotal point as the view points are more numerous and their discussions more free. This can obtain only in society gatherings. Medical sessions store up, as immediate gain, the positive knowledge derived from debates in which views, either opposite or concordant, have been sustained and well thrashed out, but they have also the more far reaching advantage of favoring personal contacts and, in bringing men together, of permitting exchange of their ideas and feelings outside of, as well as during the meetings, a gain of subtle and immeasurable range. Oftentimes seeds of

incalculable value are thus sown in favorable soils from which in time an inestimable harvest is reaped. Let us therefore devote an unceasing zeal to our District Branch Meetings, with the assurance that it can but turn to the welfare of the State Society.

Respectfully submitted,

J. L. ARCHAMBAULT,

*President Third District Branch.*

Cohoes, December 31, 1909.

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## REPORT OF COUNCILOR OF THE FOURTH DISTRICT BRANCH

*To the House of Delegates:*

The Annual Meeting was held at Plattsburg, July 8th. About eighty of the members were present and a very pleasing and profitable meeting was held.

The following officers were elected for the year 1910:

President, D. L. Kathan, Schenectady; Vice-President, G. C. Madill, Ogdensburg; Secretary, F. J. Resseguie, Saratoga Springs; Treasurer, G. H. Oliver, Malone.

The County Societies are in a normal active state throughout the District.

One illegal practitioner was reported and referred to State headquarters.

The Annual Meeting for 1910 was voted to be held September 27th, at Schenectady, by the House of Delegates.

Respectfully submitted,

W. C. THOMPSON,

*President Fourth District Branch.*

Plattsburg, December 31, 1909.

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## REPORT OF COUNCILOR OF THE FIFTH DISTRICT BRANCH

*To the House of Delegates:*

As President of the Fifth District Branch I have the honor to report to you that the Third Annual Meeting of the Branch was held at Watertown, October 14, 1909.

The meeting was in every way as successful both in a scientific and social manner as the two prior meetings, and has thoroughly established the Branch Meetings as an important event in our District.

While the gain in membership for the past year has been inconsiderable, still the outlook for next year is better than ever before.

There is no question but that our Annual Meeting bringing together the best men in our

District has awakened interest in the County Society, and that many men who had allowed their membership to lapse in the local Society are now ready to join with us again in order to enjoy the benefits of these Annual Meetings as well as to participate in the larger benefits of the State Society.

The papers read at this meeting, like those heard at our former meetings, would rank in scientific attainments and in practical interest with those presented at the State Society. There can be no question but that the Annual Meetings of the Fifth District will in the future prove important events in the medical history of this section of the State.

A resolution was offered at this meeting to be voted upon at our next meeting to change the By-Laws so that the election of officers could be made by the full meeting, instead of by the House of Delegates, as at present. This resolution will no doubt be carried and put into operation at the next meeting.

There is also a feeling that annual dues should be collected from each member to meet expenses not provided for by the State Society. This question will also be taken up at the next meeting.

The officers elected for the coming year are: President, J. W. Eddy, Oswego; Secretary, W. D. Garlock, Little Falls; Treasurer, LeR. W. King, Lowville.

The next meeting will be held at Syracuse.

Respectfully submitted,

G. D. GREGOR,

*President Fifth District Branch.*

Watertown, December 31, 1909.

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## REPORT OF COUNCILOR OF THE SIXTH DISTRICT BRANCH

*To the House of Delegates:*

I have the honor to report a very satisfactory condition of the Societies constituting the Sixth District Branch.

The Annual Meeting, held at Oneonta, while not so well attended as some of the former meetings, owing to its being held in the extreme end of the District, was most satisfactory.

The papers presented were meritorious, and the subject matter varied so that valuable and very interesting general discussions were brought out.

Respectfully submitted,

S. A. MERENESS, *President,*

*Sixth District Branch.*

Oneonta, December 31, 1909.



## REPORT OF COUNCILOR OF THE SEVENTH DISTRICT BRANCH

*To the House of Delegates:*

The third Annual Meeting of the Seventh District Branch of the Medical Society of the State of New York was held at Hornell on the 16th of September, 1909. There were forty-four members present, which, when we remember that the meeting was held in the Southern Tier Counties, so far from the larger cities of the District, we consider *very* encouraging for, not only the growth and proper development of the Seventh Branch, but for the cordial support we have pledged to the State Society.

The Committee appointed at the previous meeting to ascertain the number and location of unlicensed practitioners, not being prepared to report, was continued another year. The communication from the State Board of Health asking for pledges to apply some specific preventive treatment for ophthalmia neonatorum, came before the Branch in much better form than in the previous year, and after thorough discussion was favorably reported, and about thirty of those present signed the pledge. There were nine excellent papers read at the meeting, all of which elicited thorough discussion.

The next Annual Meeting will be held at Geneva. Dr. W. W. Skinner was elected President, and Dr. W. T. Mulligan, Vice-President.

Respectfully submitted,

W. E. PALMER,

*President Seventh District Branch.*

Hornell, December 31, 1909.

## REPORT OF COUNCILOR OF THE EIGHTH DISTRICT BRANCH

*To the House of Delegates:*

I have the honor to report that the Eighth District Branch is in good shape. All Counties but one have reported increased interest.

I have further to report that the Fourth Annual Meeting was held in the Natural Science Rooms at the Buffalo Public Library Building, Wednesday and Thursday, September 8th and 9th. Papers of great value were listened to and interesting discussions were held.

The meeting was called to order promptly at 2 o'clock and officers for the ensuing year were elected as follows:

Dr. Edward Munson, Medina, President; Dr. Thomas H. McKee, Buffalo, 1st Vice-President; Dr. John S. Wright, Perry, 2nd Vice-President;

Dr. Carl Tompkins, Buffalo, Secretary; Dr. Charles A. Wall, Buffalo, Treasurer.

A very enjoyable dinner was held at the University Club on Wednesday evening, which was followed by speeches from men prominent in medical and other circles.

On Wednesday, September 9th, a very attractive scientific program was carried out.

Respectfully submitted,

EMERSON E. SNOW,

*President Eighth District Branch.*

Batavia, December 31, 1909.

## REPORT OF COMMITTEE ON U. S. PHARMACOPOEIA

*To the House of Delegates:*

Your Committee appointed to consider criticisms and suggestions for the next revision of the United States Pharmacopoeia hereby recommend the approval of the following suggestions:

1. That drugs that are nearly obsolete and those whose medicinal value is questionable be omitted in the next revision.

2. That preparations of drugs be limited so as to avoid unnecessary multiplication of those of similar character or action. That the list of official salts be likewise limited.

3. That methods of physiological assay be introduced where necessary for proper standardization of organic drugs.

4. That technical chemical tests of substance be limited to those strictly necessary for identity and purity.

5. That incompatibles be mentioned as far as practicable for each drug and preparation.

6. That the present plan of mentioning the average dose only of each internal drug be continued.

7. That the simplest possible titles be employed.

We recommend also the adoption of the following resolutions:

Resolved, That it is the sense of the Medical Society of the State of New York that the interests of medical science require the establishment of a Bureau of Materia Medica that shall institute disinterested investigations into the character and physiological action of new drugs.

Resolved, That this Society recommends to the Decennial Convention of 1910 for the revision of the United States Pharmacopoeia the creation of such a Bureau, by and under its authority, that shall report annually to the Committee of Revision upon matters coming properly within the scope of its work; and

that the Committee of Revision of the United States Pharmacopoeia publish annually a report which shall give the conclusions concerning the proposed new drugs.

Your Committee would also report concerning the communication from the New York branch of the American Pharmaceutical Association upon the Status of the Prescription, which was referred to it one year ago. We recommend the approval of the articles of that communication as printed in our proceedings, except that part of Article I which states that the name of the patient should be placed upon the prescription. For obvious reasons that part of Article I should not be approved.

Respectfully submitted,

ELI H. LONG,  
S. W. S. TOMS.

## REPORT OF THE PRESIDENT

*To the House of Delegates:*

GENTLEMEN—As President of the Medical Society of the State of New York, I have the honor of extending a cordial greeting to each member of the House of Delegates, gathered as representatives of a membership of about 7,000 physicians, and as guardians of the interests of the medical profession throughout this great state.

An earnest effort has been made to enroll in membership all respectable physicians in our territory. While interest has resulted from these efforts, yet there remains a proportion of the profession which seems to be unconscious of the advantages and the moral obligation appertaining to membership in the county, state and national bodies.

I respectfully recommend that some action be taken by this House of Delegates that shall result in the systematic study of this important question and the adoption of some plan whereby we may increase our number and thus widen our influence.

The deliberate education of the unconnected members of the profession should be all that is necessary. An increase of membership will result in the enlargement of our admirable "State Journal of Medicine." It is flourishing under the guidance of its efficient editor, but great possibilities await its more general support.

It is recommended that a committee, which shall include the secretary, be appointed for devising means for increasing the interest in the county societies. Co-operation with the Committee on Scientific Work would doubtless prove advantageous. The splendid activity in certain counties demonstrates what might be accomplished in others.

The District Branch meetings have been successful, in some instances enthusiastically so. It has been suggested that greater convenience and hence larger attendance would result from a slight re-arrangement of the counties into districts, not conforming strictly to the judicial districts. The convenience of courts is not necessarily parallel with that of widely scattered physicians. It is recommended that a committee be appointed to confer with men in each county, then to consider and report on this matter.

Your attention is called to the fact that the prize funds belonging to the Society through the enlightened liberality of Merritt H. Cash and Lucien Howe have not been awarded for several years. Some action should be taken bringing these prizes to the attention of the profession. A lively competition should be seen each year. Action on your part is recommended.

The Council has requested the House of Delegates to pass a resolution in reference to the Pure Food Law that shall conform in sentiment to the declarations of the American Medical Association and several state societies on the subject. To this your earnest consideration is requested.

Is it not advisable to procure the enactment of an efficient pure food law in this state? The interstate law is hampered because it applies only to products sent from one state to be consumed in another, and it is without power in dealing with the enormous adulteration of foods and drugs produced in the State of New York, supposedly for consumption therein. I have learned from United States officials that many articles are brought surreptitiously into the state for public use and that they are often unable to prevent this, because it is made to appear that these are produced in New York. I am aware of a number of dangerous instances of this evil. What is true in New York is true in other states. I would recommend that the society begin a propaganda of education on this matter and take steps to secure the introduction in the legislature of a really efficient pure food law that is complementary to the national law.

There is a feeling that the American Medical Association should convene in this state in 1911. You are requested to consider this matter, and in case you sympathize with the movement, to take action towards convincing the House of Delegates of the American Medical Association that it is wise to meet next year in this state. Should you conclude to take this action, you should decide upon the place at which the meeting would be held.

By a perusal of the by-laws it will be recalled that the duties imposed by our Society upon the Secretary are numerous and heavy.

There are many questions arising from unforeseen conditions that require wise and patient attention. At times extended correspondence or personal presence is demanded, often requiring the officer to give instant attention, regardless of his private engagements. The administration of the affairs of the Society is largely and properly delegated to the Secretary. I have had opportunities to discover the intelligence, disinterestedness, fairness and enthusiasm with which our Secretary has performed his duty, and it is but just that this should be acknowledged.

In closing I wish you a successful and harmonious session.

CHARLES G. STOCKTON,  
*President.*

### Annual Meeting of the House of Delegates of the Medical Society of the State of New York

The regular annual meeting of the House of Delegates of the Medical Society of the State of New York was held at the City Hall, in Albany, January 24, 1910, at 8:30 P. M., Dr. Charles G. Stockton, President, in the chair; Dr. Wisner R. Townsend, Secretary.

Present: C. G. Stockton, President; D. C. Moriarta, First Vice-President; J. B. Harvie, Third Vice-President; Wisner R. Townsend, Secretary; Alexander Lambert, Treasurer; L. H. Neuman, Chairman Committee on Scientific Work; J. L. Heffron, Chairman Committee on Public Health; W. J. Nellis, Chairman Committee on Arrangements. Also the following Councillors:

J. L. Archambault, Third District Branch, and W. C. Thompson, Fourth District Branch.

On roll call the following delegates answered to their names: J. D. Craig, W. G. Macdonald, S. B. Ward, F. Sefton, N. G. Richmond, R. P. Bush, W. C. Thompson, C. G. Rossman, R. P. Higgins, R. B. Lamb, I. D. LeRoy, G. W. Wende, A. W. Hurd, W. H. Thornton, B. Cohen, C. A. Wall, E. Clark, T. H. McKee, A. G. Bennett, E. H. Long, C. C. Trembly, M. F. Drury, W. A. Wasson, F. R. Calkins, W. C. Braislin, A. T. Bristow, W. Browning, W. F. Campbell, R. L. Dickinson, J. B. Dowd, J. W. Fleming, L. T. Jackman, J. Kepke, G. F. Little, J. C. MacEvitt, J. C. Rushmore, C. H. McVean, H. G. Webster, J. McF. Winfield, P. H. von Zierolshofen, J. F. Munson, W. R. Howard, R. R. Fitch, J. O. Roe, E. H. Howard, C. O. Boswell, E. C. LaPorte, D. D. Ashley, D. B. Brinsmade, LeR. Broun, W. L. Carr, F. M. Crandall, C. Dederer, D. S. Dougherty, E. P. Fowler, H. Fox, R. Guiteras, W. P. Healy, H. S. Houghton, A. Jacobi, E. LeFevre, F. W. Loughran, J. M. Mabbott, V. C. Pedersen, C. H. Richardson, L. L. Seaman, H. M. Silver, W. S. Thomas, B. H. Wells, H. W. Wootton, H. H. Mayne, W. H. Potter, C. Bernstein, F. J. Douglas, H. G. Jones, J. L. Heffron, D. H. Murray, D. M. Totman, J. Mann, C. M. Niesley, J. B. Harvie, W. Kirk, S. W. S. Toms, G. C. Madill, R. H. Hutchings, F. F. Gow, J. J. Beard, C. B. Bacon, H. B. Smith, W. A. Moulton, L. Coville, H. Van Hoevenberg, S. Pashley, A. A. Young, T. F. Goodwin, A. C. Way.

A quorum having answered to their names on the preliminary roll call, the meeting was declared open for business.

The following were later admitted as delegates for absentees from New York County:

I. Adler, J. Van D. Young, I. D. Steinhardt, R. S. Morton, J. E. Weeks, W. H. Whitbeck, R. H. Halsey, and A. Parry.—Total 104.

The Secretary read the following communication from Dr. Sturgis:

"January 25th, 1910.

To the House of Delegates of the Medical Society of the State of New York.

Gentlemen:—

I beg leave, as a member of the Medical Society of the State of New York, to protest against seating the following persons, to-wit:

Drs. Angenette Parry,  
Rosalie S. Morton,  
Irving D. Steinhardt,  
James M. Hitzrot, or  
Isaac Adler,

as delegates from the Medical Society of the County of New York to the Medical Society of the State of New York, on the ground of illegality of election.

Respectfully,

(Signed) F. R. Sturgis."

On motion, duly seconded, the matter was referred to a committee consisting of Dr. Macdonald, of Albany; Dr. Campbell, of Brooklyn, and Dr. Clark, of Buffalo. This committee reported later in the evening as follows:

"Albany, January 24th, 1910.

To the House of Delegates of the Medical Society of the State of New York:

The Committee on Contested Seats find in the matter of the protest of Dr. F. R. Sturgis, a member of this Society, against the seating of the following: Drs. Steinhardt, Morton, Parry, and Adler, as members of the House of Delegates of the Medical Society of the State of New York:

That the aforesaid Drs. Steinhardt, Morton, Parry, and Adler were not, under the Constitution and By-Laws of the State and County Societies, regularly elected delegates.

Respectfully submitted,

W. G. Macdonald, M.D.,  
William Francis Campbell, M.D.,  
Edward Clark, M. D."

Moved, seconded and carried, that the report be accepted.

Dr. LeFevre, as Chairman of the Delegates from the Medical Society of the County of New York, under Article 4, Chapter III of their Constitution presented the names of Drs. I. Adler for J. A. Bodine, absent; J. Van Doren Young for F. S. Fielder, absent; I. D. Steinhardt for E. M. Foote, absent; R. S. Morton for E. E. Harris, absent; J. E. Weeks for W. B. Hoag, absent; W. H. Whitbeck for A. Knapp, absent; R. H. Halsey for M. C. O'Brien, absent; A. Parry for A. Sturmdorf, absent; stating that they had been unanimously elected by the delegates present. Their names were called by the Secretary and the President declared them present as Delegates.

Dr. Moriarta occupied the chair during the reading of the report of the President. See page 162.

Dr. Bennett moved, and it was seconded, that a committee be appointed to consider the suggestions made in the President's address. Motion carried.

The Chair appointed Dr. Bennett, of Buffalo; Dr. Bristow, of Brooklyn, and Dr. Craig, of Albany.

Moved, seconded and carried that the report of the Council be accepted as printed. See page 146.

Moved and seconded that the report of the Treasurer be accepted as printed. See pages 144 and 145. Motion carried.

### REPORTS OF STANDING COMMITTEES.

It was ruled by the Chair that these reports must be read and action taken upon any recommendations contained therein.

The report of the Committee on Scientific Work was read by Dr. Neuman. See page 155. Moved and seconded that it be accepted as read. Motion carried.

Report of the Committee on Legislation.—There being no recommendations in this report, it was moved and seconded that it be accepted as printed without being read. See page 150. Motion carried.

The report of the Committee on Arrangements was read by Dr. Neillis. See page 156. Moved and seconded that it be accepted. Motion carried.

The report of the Committee on Public Health was read by Dr. Heffron. See page 146.

It was moved and seconded that the recommendations be taken up in their order and action taken thereon. Motion carried.

Moved by Dr. Wall, and seconded, that the following recommendation relative to the pollution of water be adopted:

"That the Medical Society of the State of New York declares its opinion that the public health is endangered by the pollution of water courses, and that the Legislature should at once so amend the health laws as to make such pollution amenable to the control of the Commissioner of Public Health under proper safeguards." Motion carried.

With regard to the pure food recommendations Dr. Heffron stated that the Committee on Public Health had reviewed all the literature upon the subject and that the recommendations were in accordance with a policy which the American Medical Association desired to be carried out.

It was moved and seconded that the following recommendations be adopted:

"1. That the Medical Society of the State of New York respectfully requests the President of the United States and the Secretary of Agriculture to secure an amendment to the National Food and Drugs Act by which the use of antiseptic drugs in canned fruits and vegetables, and in all preparations from fruits and vegetables designed for human consumption, shall be prohibited, and

"2. That the inspection of the commercial food kitchens of the United States by government officials, for the purpose of insuring the use of sound materials, cleanliness of methods, and compliance with the law concerning adulterants and the use of drug preservatives, be made obligatory.

"3. That the Congress be and is hereby urgently requested to institute an investigation with reference to determining in what additional particulars the Food and Drugs Act, as now construed and enforced, fails to afford adequate protection to the American people."

Dr. Mabbott called attention to the statement: "There is not, at the present time, knowledge concerning the physiological action of any of the antiseptic drugs used as food preservatives which is sufficiently full and convincing to warrant authoritative statements." The adoption of the recommendations as read would exclude the use of benzoate of soda and prevent the possibility of finding out whether or not it was injurious. He preferred ketchup containing a little benzoate of soda rather than that which was fermented and contained he did not know what. He doubted if any member of the American Medical Association knew what happened to an apple when it became rotten.

He further took exception to the statement: "The idea of antiseptic rather than aseptic food is abhorrent to the medical profession." This was news to him. He believed that there was a controversy involved and that the House of Delegates should not go on record as taking either side of the controversy, and, for that reason, would vote against the adoption of the recommendations as read.

It was moved and seconded that debate be limited to three minutes. Motion carried.

Dr. Totman quoted the statement: "Only recently the health officer of a city is reported in the papers to have said that no canned goods are safe." He said that he was the health officer referred to, and that he had been misquoted. He did not wish to be reported as saying that all canned goods were unsafe.

Dr. Jacobi was of the opinion that all were in favor of asepsis rather than antiseptics. Formaldehyde had been recommended for the purpose of making milk aseptic for feeding to babies by one of the greatest names in medicine, Dr. E. von Behring. At the time when he said it was absolutely innocent, cases were reported by health officers in England showing that its use resulted in eruptions of the skin, etc. The public will be safer if physicians take the ground that they prefer asepsis to antiseptics in every respect.

The motion to adopt the resolutions as read was carried by a large majority.

The recommendation with regard to a National Bureau of Public Health was read by Dr. Heffron, who stated that this was in accordance with recommendations made by President Taft:

"That the Medical Society of the State of New York respectfully urges upon Congress and the Senate of the United States the organization under a single Bureau, to be known as The Bureau of Public Health, of all the offices and agencies now having duties in any way connected with the preservation of the public health, except only those offices having to do with the protection of the health of the Army and Navy."

Dr. Seaman stated that if there was any one department of the Government that needed the supervision of a public health officer it was that of the Army. "When it is remembered that in the Spanish War there were 25,800 hospital admissions in an army of 272,000 units, within four months of the opening of the campaign, mostly due to lack of sanitation, fermented foods, and wrong dietary, the reason can be appreciated. The cause attributed for fourteen men dying from disease, to one from battle casualties in that so-called war, was typhoid fever, but in reality typhoid fever played a comparatively small part in filling the hospitals. The real cause was auto-intoxication resulting in septicaemia. When the soldiers under changed conditions of climate, water or cold, contracted a slight diarrhea in their frightfully insanitary camps, they were fed upon fermenting tomatoes, fresh and salt meats, and pork and beans, with the results referred to. The ration of the American soldier is the richest in the world, but it should have been changed to meet the conditions. Unless medical officers are given control over matters of sanitation and dietary, our next war will see a repetition of the humiliating and totally unnecessary sacrifice of our forces. I regret the three-minute limit bars further discussion."

He objected to the clause exempting the Army.

Dr. Jacobi said that absolutely no preparations had been made to receive the men sent to Montauk Point, and that if it had not been for the contributions of money and supplies received from the citizens of New York and Philadelphia, and for the civilian nurses, it would have been impossible to have taken care of all these men. He was of the opinion that the words "except only those officers having to do with the protection of the health of the Army and Navy" should be stricken out.

Dr. Boswell was of the opinion that it would not be proper for the Medical Society of the State of New York to step in and tell the Army and Navy how to do their work; that they should be allowed to work in their own way, but that the members

of the Medical Society of the State of New York should use their influence with their Congressmen to secure what was wanted by these departments.

Dr. Dougherty thought there was some misconception as to the recommendation. There was a responsible head to conserve the health of both the Army and Navy, but there was no competent bureau to conserve the public health, and he was in favor of the establishment of a bureau to conserve the general health of the country.

Dr. Heffron stated that the Army and Navy were fighting this movement; that this recommendation was based upon the argument of Dr. Dougherty and was for the protection of the health of the people, leaving to the heads of the military and navy departments such control as they already had over the Army and Navy.

It was moved and seconded that the recommendation be adopted as read. Motion carried.

The recommendation "that this Society disapproves of the appropriation of State moneys for the establishment of any course in a university which is not solely under State control" was next considered.

Moved by Dr. Toms, and duly seconded, that the recommendation be adopted as read. Motion carried.

Dr. von Zierolshofen, before vote was taken, moved to disagree with this recommendation.

On question as to whether motion to adopt or disagree had been carried, Chair ruled that, as motion to disagree had not been seconded, it had not been voted on, and that the original resolution had been adopted.

The report of the Committee on Prize Essays was read by Dr. Jacobi. See page 151. Moved and seconded that it be adopted as read. Motion carried.

The report of the Committee on United States Pharmacopoeia was presented by Dr. Long. See page 161.

It was moved and seconded that the recommendations and resolutions contained in this report be adopted, and that the delegates to the Pharmacopoeia Convention be instructed to bring them to the attention of that body. Motion carried.

The Committee further reported concerning the communication from the New York Branch of the American Pharmaceutical Association upon the Status of the Prescription, which was referred to it one year ago.

"Declaration on the Status of the Prescription by the New York Branch of the American Pharmaceutical Association:

"1. The prescription should be a signed and dated order from the physician to the pharmacist to prepare and deliver certain medicines, etc., to the patient. The prescription should be written plainly and distinctly, in ink if possible. It should bear the full name of the prescriber, either printed or written, and should state the name of the patient, and if a child, also the age.

"A telephone prescription, that is, a prescription which in case of emergency the physician telephones to the pharmacist, must in all cases be repeated by the pharmacist, so as to avoid misunderstandings, and should be followed, especially in the case of potent drugs, with a written order from the physician.

"In case the physician intends to prescribe an unusually large dose, the quantity of drug should be underlined, and be followed by an exclamation mark. General directions, like 'As directed,' etc., should be avoided.

"2. The pharmacist who dispenses the medicine should invariably retain the original prescription for future reference, and as a record, for a limited period—say five years. This for his own protection, as well as that of the prescriber and the patient.

"3. The medicine prescribed should be supplied not more than once on the same prescription, in the following instances:

"(a) If ordered by the prescriber, 'not to be repeated' or marked 'Ne repetatur';

"(b) If it contains medical substances commonly called narcotic or habit-forming drugs:

"(c) If asked for by some person known not to be the original holder.

"4. One copy of the prescription may be furnished to the patient, but to no other person. This copy should be marked 'copy' or 'copia' and should be plainly and distinctly written in ink. In the event of the prescriber not desiring a copy to be given, he should note this on the prescription by writing the words, 'Give no copy.' It would be desirable to have such notation appear on every prescription. Under no circumstances should a copy of the prescription be given without consent of the physician, after the patient has recovered.

"It recommends the approval of the articles of that communication, as printed in our proceedings, except that part of Article I which states that the name of the patient should be placed upon the prescription. For obvious reasons that part of Article I should not be approved."

Dr. Jacobi did not believe it safe to give a prescription without mentioning the name of the patient, and stated that many prescriptions have gone astray for this reason.

Dr. Boswell thought the courts had held that the original prescription was the property of the person for whom it was given.

Dr. Jacobi stated that this recommendation required the prescription to be retained by the druggist, but that according to legal advice the patient had a right to it.

A motion, duly seconded, to adopt the recommendation as read, was lost.

It was moved and seconded to adopt the recommendation, omitting the reference to Article I. Motion carried.

The report of the Committee on Experimental Medicine was adopted as printed. See page 155.

The report of the Committee on Expert Testimony was read by Dr. Murray. See page 154. It was moved and seconded that the report be adopted and the committee continued. Motion carried.

It was moved and seconded that the report of the Counsel be accepted as printed. See page 151. Motion carried.

Reports of District Branches.—It was moved and seconded that they be accepted as printed. See pages 156 to 161.

Report of Secretary.—Moved by Dr. Cohen, and seconded by Dr. Wall, that the report be accepted as printed, except the reference to a change in the Constitution of the State Society, and that this be taken up separately. See page 143. Motion carried.

Dr. Wall stated that the Legislature had given the State Society power to change the time and place of meeting; that last year two amendments to the Constitution were introduced on this subject, and he now moved as a substitute for the amendments then presented the following: "That Chapter 213 of the Laws of 1909 be substituted for Section 1 of Article VI of the Constitution of the Medical Society of the State of New York." Seconded.

"§ 1. The Medical Society of the State of New York may, from time to time, change the place and day of holding its annual meeting to such other place and day in the year as may be more convenient, by a two-thirds vote of all the members of the House of Delegates of said Society present at any anniversary or annual meeting of said Society, provided, that no such change shall be made unless notice of the intention to change the time and place of such annual meeting shall have been first given at a previous regular annual meeting. An entry in the minutes of said Society of notice of such

intention to change the time and place of the annual meeting, and an entry in such minutes of the vote taken upon any motion made pursuant to any such notice, shall be prima facie evidence of such notice, motion, and the vote had thereon respectively."

Dr. Macdonald: This would appear to involve the power of this Society, by the House of Delegates, to change not only the prescribed date of meeting, but also the place of meeting. The meetings of the Medical Society of the State of New York have been held in the City of Albany for more than a century. These meetings have been continuously well attended, and the character of the programs and achievements of the Society will bear the closest inspection and investigation. Albany is located at a central point in the State of New York, and, in spite of the statements of some, neither Peary nor Cook have come here to acclimate themselves for the journey to the frozen regions.

We have a very considerable population. The journey is a short one from any part of the State. There are many sides to this question. While the scientific work of the Society has been most excellent, its principal achievements lie in another direction. There is not a law on the statute books affecting the practice of medicine but had its origin in this Society. The fact that you meet in this city while the Legislature is in session is a potent factor in placing many of these laws upon the statute books.

I would call your attention to the experience of some other societies. The State Agricultural Society for many years met first in one city and then in another, and finally became largely a local affair. The Bar Association of the State of New York met in this city for a number of years, but finally yielded to the desire for change. They went to New York, and the meeting resulted in a meeting of the Bar of the City of New York. They went to Buffalo, and there was a very large local representation and a very small general representation. This year they went to Rochester, and I am told that the Bar of the City of New York was represented by scarcely a half dozen, and the Borough of Brooklyn by three. Next year they met in Syracuse, but after that I am told by those who have in control the destinies of the State Bar Association, they are coming back to Albany.

Dr. Wall: Nothing has been said by Dr. Macdonald in relation to this resolution, which simply makes our Constitution correspond to our statute law. Then from now on the meeting place remains the same, unless we vote by a later motion to change it. Motion carried.

Dr. Wall moved that Chapter IV, Section 2 of the By-Laws be amended by striking out the words "the office of Secretary or Treasurer," and substituting therefor any elective position not provided for in the By-Laws.

Also that Chapter VI, Section 2, be amended by adding and the other vice-presidents advanced in order. Motions seconded and carried.

Dr. Wende offered the following resolution:

"Be it Resolved, That the delegates to the Medical Society of the State of New York from Erie County be instructed to extend an invitation to the American Medical Association to meet in Buffalo in 1911."

Moved and seconded that the resolution be adopted. Motion unanimously carried.

Dr. LeFevre, for the Committee on Experimental Medicine, presented the following resolutions:

"Resolved, That the Committee on Experimental Medicine of the Medical Society of the State of New York be and hereby is continued for the ensuing year and is vested with the duties and authority heretofore bestowed upon it."

"Resolved, That each member of the House of Delegates hereby pledges his best efforts in oppos-

ing any encroachments on qualified animal experimentation for scientific medical purposes, that may be recommended for enactment during the current session of the Legislature."

Moved and seconded that the resolutions be adopted. Motion unanimously carried.

Dr. Heffron offered the following resolution:

"Resolved, That the necessary traveling expenses of the three delegates from the Society to the Pharmacopœia Convention of 1910 be paid by the Treasurer of the Society."

Moved and seconded that the resolution be adopted. Motion carried.

Dr. Wall offered the following resolution:

"Resolved, That the Committee on Legislation be directed to have an act introduced in the State Legislature repealing the following laws:

"Laws of 1818, Chapter 206, Section 6 in full;

"Laws of 1819, Chapter 237, Section 1 in full;

"Laws of 1839, Chapter 26 in full."

Dr. Bush thought these laws were repealed in the codification of 1902.

Dr. Wall stated that they were in the Consolidated Statutes of 1909.

Moved and seconded that the resolution be adopted. Motion carried.

Dr. Hurd presented the following resolution:

"Resolved, That the Medical Society of the State of New York hereby approves the efforts being made to bring about legislation placing the responsibility of securing the commitment of the insane to State hospitals upon health officers, instead of county or other lay officers, as at present."

It was moved and seconded that the resolution be adopted.

Dr. von Zierolshofen was of the opinion that the health officers have enough to do without putting any more duties upon them. Motion carried.

Dr. Roe moved to amend Chapter VII, Section 1, of the By-Laws to read as follows:

"The following shall be the standing and annual committees of this Society:

"The standing committees shall be one on Legislation and one on Public Health.

"The annual committees shall be one on Scientific Work and one on Arrangements.

"The standing committees shall be elected by the House of Delegates; the annual committees shall be appointed by the President.

"The remaining portion of this section to remain as at present. That Section 2 become Section 4, Section 3 become Section 2, and Section 4 become Section 3."

The Chair stated that under the By-Laws this matter must go over until the next meeting.

Dr. Munson, by request, presented the following resolution:

"Resolved, That the Medical Society of the State of New York respectfully requests that the Legislature of this State, at its session to open in January, 1910, pass a law restricting the marriage of the insane, the epileptic, the feeble-minded, and the habitual drunkard. Also that they approve that more power be given to institutions caring for the mentally defective to keep such individuals in institutions after they have once been sent there."

Moved and seconded that it be referred to the Committee on Legislation. Motion carried.

Dr. Wall, by request, offered the following resolution:

"Resolved, That the next annual meeting of this Society be held in New York City, beginning on the last Tuesday in September, 1911."

Dr. Ward moved, and it was duly seconded, to divide the resolution, so as to consider first the place of meeting and that having been decided to fix upon the date. Motion carried.

Dr. Wall moved and it was seconded by Dr.

LeFevre, that the next meeting of the Society be held in New York City.

Dr. LeFevre stated that at a meeting of the delegates from the Medical Society of the County of New York he was requested, as chairman, to invite the Medical Society of the State of New York to hold its next meeting in New York City. New York would be proud to have the Society meet there, and it would give an opportunity for the great body of the profession in New York, Brooklyn, and contingent Boroughs to attend at least one annual meeting. He thought the movement for a change in the place of meeting covered more than appeared on the surface; that the time had gone by when it was thought necessary to meet in Albany; that another necessity had arisen—the bringing of the great mass of the profession in New York City in closer touch with the State Society; that by holding the meetings in rotation in different parts of the State, a habit of attending the meetings on the part of the profession would be formed, and they would be brought in closer touch with their county work and with the State work.

Dr. Long arose for information. He did not think it competent for this meeting to fix the time or place of the next annual meeting, as this required a year's notice to the State Society.

The Counsel, Mr. James Taylor Lewis, in reply to the question, gave it as his opinion that it might be considered at this time.

Dr. Bush stated that his County Society had instructed him to favor this amendment to the By-Laws. The argument was used that the meetings of the State Society would be means of enlightenment and of stirring up enthusiasm among local practitioners. This view had impressed him, and, accordingly, he seconded the motion that the next meeting be held in New York City.

Dr. Root, an ex-President of the Society, by unanimous consent, was given the freedom of the floor for the purpose of speaking upon this question. He stated that he felt a great deal more strongly upon this subject than he was able to express. He felt that a great many did not realize just what this question meant, and was afraid it might be decided without catholic and mature deliberation. All knew the attractiveness of New York and its facilities, with its great hospitals and medical institutions, but the thing that made a Society worth going to was what that society represented, and if a man had the right spirit, it would not be any farther from New York to Albany than it was from Albany to New York, or from Buffalo to New York. They should consider not the men in the large center, but the men in the remote country districts, where the situation was very serious and which presented a problem which the State Society would have to meet. He stated that there were districts absolutely without medical protection. The young man from the country who goes to the medical college and spends several years there feels himself too well qualified for a small hamlet. What was the Society going to do about that? A man who has to drive six or eight miles to a station considers very seriously whether, in addition, he wants to change cars two or three times. Albany is centrally located and accessible to these men. He did not believe that attendance at the meetings was governed by the fact that the meetings were held in Albany, or by the time of year, but that there were underlying forces. He had known some of the gentlemen who complain about the hotel accommodations to rush up from New York, read their papers, occupy their room for perhaps one night, and then rush back to New York. What was needed was a warmer interest in the scientific sessions and less advertising of ourselves. It was not a question of how much one could get out of the meeting, but how much one

could bring to it. The Albany members of the Society had no ulterior motive in wishing to continue the meetings at that place, but believed that the precedents of the Society should count for something. So far as the influence upon legislation was concerned, some thought it did not amount to anything. He had been a member of the Legislative Committee for fourteen years and had spent a great deal of time at the Capitol, afternoon after afternoon, at committee meetings, and evening after evening closeted with individual members. He believed it would be a mistake to change the place of meeting, and that it was better not to make mistakes than to try and rectify them after they were made.

It was moved and seconded that the roll be called. All in favor of meeting in New York to vote aye, opposed no. After the roll call, before the vote was announced, a motion was made to adjourn until the following morning at 9 o'clock, when the first order of business shall be the election of officers. Motion was duly seconded and carried.

Wisner R. Townsend, Secretary.

### Adjourned Meeting of the House of Delegates

The adjourned meeting of the House of Delegates was called to order at 9:15 A. M., Tuesday, January 25th, President Stockton in the chair; Wisner R. Townsend, Secretary.

It was moved and seconded that the reading of the minutes of the previous meeting be deferred. Motion carried.

According to notice previously given the first order of business taken up was the election of officers. The chair appointed Drs. Boswell and Webster tellers.

President.—Dr. Charles Jewett, of Brooklyn, was nominated, and it was duly seconded. There being no other nominees, the by-laws were suspended by unanimous consent and the Secretary was instructed to cast one ballot for Dr. Jewett, and he was declared duly elected President for the ensuing year.

First Vice-President.—Dr. Charles Stover, of Amsterdam, was nominated, and it was duly seconded. There being no other nominees, the by-laws were suspended by unanimous consent, and the Secretary was instructed to cast one ballot for Dr. Stover, and he was declared duly elected First Vice-President for the ensuing year.

Second Vice-President.—Dr. J. W. Grosvenor, of Buffalo, was nominated, and it was duly seconded. There being no other nominees, the by-laws were suspended by unanimous consent and the Secretary was instructed to cast one ballot for Dr. Grosvenor, and he was declared duly elected Second Vice-President for the ensuing year.

Third Vice-President.—Dr. C. W. M. Brown, of Elmira, was nominated, and it was duly seconded. There being no other nominees, the by-laws were suspended by unanimous consent and the Secretary was instructed to cast one ballot for Dr. Brown, and he was declared duly elected Third Vice-President for the ensuing year.

Secretary.—Dr. Wisner R. Townsend, of New York, was nominated, and it was duly seconded. There being no other nominees, the by-laws were suspended by unanimous consent and the Secretary was instructed to cast one ballot for Dr. Townsend, and he was declared duly elected Secretary for the ensuing year.

Treasurer.—Dr. Alexander Lambert, of New York, was nominated, and it was duly seconded. There being no other nominees, the by-laws were suspended by unanimous consent and the Secretary was instructed to cast one ballot for Dr. Lambert, and he was declared duly elected Treasurer for the ensuing year.

Chairman, Committee on Scientific Work.—Dr. Leo H. Neuman, of Albany, was nominated, and it was duly seconded. There being no other nominees, the by-laws were suspended by unanimous consent and the Secretary was instructed to cast one ballot for Dr. Neuman, and he was declared duly elected Chairman of the Committee on Scientific Work for the ensuing year.

Chairman, Committee on Legislation.—Dr. Frank Van Fleet, of New York, was nominated, and it was duly seconded. There being no other nominees, the by-laws were suspended by unanimous consent and the Secretary was instructed to cast one ballot for Dr. Van Fleet, and he was declared duly elected Chairman of the Committee on Legislation for the ensuing year.

Chairman, Committee on Public Health.—Dr. Thomas H. Halsted, of Syracuse, was nominated to succeed Dr. Heffron, and it was duly seconded. There being no other nominees, the by-laws were suspended by unanimous consent, and the Secretary was instructed to cast one ballot for Dr. Halsted, and he was declared duly elected Chairman of the Committee on Public Health for the ensuing year.

Chairman, Committee on Arrangements.—It was moved and seconded that the election be deferred until it was decided where the next meeting was to be held. Motion carried.

Five delegates to the American Medical Association for two years.—The following were placed in nomination and seconded: Drs. J. Riddle Goffe, of New York; William H. Thornton, of Buffalo; H. Seymour Houghton, of New York; John E. Weeks, of New York; Dwight H. Murray, of Syracuse; E. B. Angell, of Rochester; Charles Stover, of Amsterdam; Willis E. Ford, of Utica; V. C. Pedersen, of New York, and John O. Roe, of Rochester. The five receiving the highest votes were Drs. J. Riddle Goffe (72), William H. Thornton (50), H. Seymour Houghton (47), John E. Weeks (44), and Dwight H. Murray (38), and they were declared duly elected.

Six Alternates for two years.—Moved, seconded and carried that the five members nominated for delegates, but not elected, be selected as alternates, adding to the list Dr. George Little, of Brooklyn. There being no other nominees, the by-laws were suspended by unanimous consent and the Secretary was instructed to cast one ballot each for Drs. E. B. Angell, Charles Stover, Willis E. Ford, V. C. Pedersen, John O. Roe, and George Little, and they were declared duly elected alternates for two years.

Three Delegates to Pharmacopoeia Convention in Washington.—The names of Drs. W. A. Bastedo, of New York; S. W. S. Toms, of Nyack, and W. A. Groat, of Syracuse, were presented and duly seconded. There being no other nominees, the by-laws were suspended by unanimous consent and the Secretary was instructed to cast one ballot each for Drs. Bastedo, Toms, and Groat, and they were declared duly elected delegates to the Pharmacopoeia Convention in Washington.

Three Alternates.—The names of Drs. E. H. Bartley, of Brooklyn; T. P. Scully, of Rome, and A. E. Larkin, of Syracuse, were presented and duly seconded. There being no other nominees, the by-laws were suspended by unanimous consent and the Secretary was instructed to cast one ballot each for Drs. Bartley, Scully, and Larkin, and they were declared duly elected Alternates.

Dr. Wall stated that a question had arisen with reference to the officers of the Society upon which he would like a ruling. The various district branches met in the fall and elected their presidents for the year. In the Eighth District Branch they expected to make a certain man president next year who was now a delegate. The Constitution says that no man shall be nominated for a position as officer of the Society during the time for which he has been elected

as a delegate. He would like a ruling as to whether that would apply to a man who would not take office until after his time as a delegate had expired.

The chair ruled that this was a matter for the district branch to decide.

Dr. Loughren stated that out of the allowance of \$3,000 made last year to the Counsel, Mr. James Taylor Lewis, he was obliged to pay about \$750 for expenses in the various cases, and it did not seem fair that he should be obliged to meet this large expense from his own pocket.

Moved and seconded that an honorarium of \$1,000 be paid to the Counsel as a testimonial for his valuable services to the Society and as a reimbursement for expenses personally met by him, and that adequate provision be made for his expenses in the future. Motion carried.

The Secretary read the following communication from Dr. F. R. Sturgis:

"New York, January 19, 1910.

Wisner R. Townsend, M. D.,

Secretary of the Medical Society

of the State of New York.

Sir:—

I hand you herewith Charges which I prefer against the Medical Society of the County of New York, and I shall ask you to be good enough to present them to the Medical Society of the State of New York for action.

Very faithfully yours,

(Signed) F. R. Sturgis.

CHARGES PREFERRED BY FREDERICK R. STURGIS, M. D., AGAINST THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

I herewith accuse the Medical Society of the County of New York of certain acts, which in my opinion, render the said Medical Society an unfit and improper representative of the medical profession of the City and County of New York, and pray that the House of Delegates will appoint some other organization to represent the profession of the said County of New York in the Medical Society of the State of New York.

I base this accusation upon the following charges:

1. That the Medical Society of the County of New York, during a portion of the years 1906 and 1907, to all intents and purposes accused a reputable member of said County Society, Dr. Charles James Mooney, of being concerned in and privy to an absorption, and failed to safeguard and protect the said Dr. Mooney's interests and professional reputation, as the County Society should have done.

2. That in 1908 the said County Society, at the instigation and under the guidance of its Comitia Minora, did illegally secure the seating of two members of the Board of Censors of said Comitia and continued them in the year 1909 in their illegal possession of these positions. And

3. That at the last annual election and subsequently thereto the said Society, through its Comitia Minora, did improperly and illegally appoint four delegates to the Medical Society of the State of New York.

(Signed) F. R. Sturgis."

Moved and seconded that the communication be referred to the Board of Censors. Motion carried.

The committee appointed to consider the President's address reported as follows:

On the recommendation that a plan be adopted to increase interest in the State Society, the committee recommends that the matter be referred to a special committee to be appointed by the President.

The committee advises the adoption of the recom-



mentation of the President that a committee be appointed to consider the advisability of rearranging the counties of the State into districts, and suggests that the Secretary of the Society be a member of this committee.

The committee recommends that the matter of pure food legislation be referred to the Committee on Legislation, to carry out the recommendations of the President.

(Signed) A. G. Bennett,  
A. T. Bristow.

Moved and seconded that the report be received and the recommendations adopted. Motion carried.

The chair appointed the following committee to carry out the first and second recommendations: Drs. Campbell, of Brooklyn; Thornton, of Buffalo; Townsend, of New York.

Dr. Bristow then addressed the House of Delegates as follows: For as many years as he could remember, and for many more, there had been coming to the meetings of the Medical Society of the State of New York a man who is an honor to New York City, an honor to New York State, an honor to the United States; a man distinguished as a scholar, distinguished as a teacher and philanthropist, distinguished as a great and public-spirited citizen. On the 6th of May he would attain the age of 80 years. It was meet and fitting that the Medical Society of the State of New York should recognize the services of this man to the Society, to the State, and to the Country; he, therefore, moved that this Society appoint a committee to consider a fitting manner for the celebration of the 80th birthday of that citizen of the world—A. Jacobi. Seconded, and, by a rising vote, unanimously carried.

Dr. Bristow moved, and it was seconded, that this committee consist of the ex-Presidents of the Society and the incoming President. Dr. Wall moved, as an amendment, to include the ex-Presidents of the State Medical Association. The amendment was accepted and the following resolution unanimously carried by a rising vote:

"RESOLVED, That a Committee consisting of the Presidents of the Medical Society of the State of New York, and of the recent New York State Medical Association, be and hereby is appointed to consider and carry into effect a celebration to be given in honor of Abraham Jacobi, M.D., LL.D., a former President of this Society, on the eightieth anniversary of his birthday.

The pending question of holding the next meeting in New York City was taken up for consideration and the chair appointed Dr. Neuman and Dr. Dougherty to record the ayes and nays.

The roll was called. Ayes—Drs. F. Sefton, N. G. Richmond, R. P. Bush, R. P. Higgins, R. B. Lamb I. D. LeRoy, A. G. Bennett, Edward Clark, Bernard Cohen, E. H. Long, T. H. McKee, W. H. Thornton, C. A. Wall, Grover W. Wende, C. C. Trembly, W. C. Braislin, A. T. Bristow, W. Browning, G. F. Little, C. H. McVean, J. C. MacEvitt, J. C. Rushmore, J. McF. Winfield, P. H. von Zierolshofen, H. G. Webster, D. D. Ashley, D. B. Brinsmade, LeRoy Broun, W. L. Carr, F. M. Crandall, C. Dederer, D. S. Dougherty, E. P. Fowler, R. Guiteras, W. P. Healy, H. S. Houghton, E. LeFevre, F. W. Loughran, I. Adler, J. Van Doren Young, I. D. Steinhardt, R. S. Morton, W. H. Whitbeck, V. C. Pedersen, C. H. Richardson, H. M. Silver, W. S. Thomas, B. H. Wells, H. H. Mayne, W. H. Potter, C. Bernstein, H. G. Jones, R. H. Halsey, A. Parry, F. J. Douglas, S. W. S. Toms, G. C. Madill, H. Van Hoevenberg, A. C. Way.—Total 59.

Nays—Drs. W. G. Macdonald, W. C. Thompson, W. F. Campbell, J. B. Dowd, J. W. Fleming, L. T. Jackman, J. Kepke, J. F. Munson, R. R. Fitch, W. R. Howard, J. O. Roe, E. C. LaPorte, C. O. Boswell, H. Fox, A. Jacobi, J. M. Abbott, L. L. Seaman, H. W. Wootton, J. L. Heffron, D. H. Murray, D. M. Tot-

man, J. Mann, C. M. Niesley, H. B. Smith, C. B. Bacon, W. A. Moulton, L. Coville, S. Pashley, A. A. Young, T. F. Goodwin.—Total 30.

The motion was declared lost, a two-thirds vote being necessary for a choice.

Dr. Le Fevre moved that Albany be selected as the next place of meeting. Dr. Thompson seconded the motion.

Dr. Way moved, as an amendment, that the next meeting be held in Rochester. Dr. Cohen seconded the motion. Ayes, 25; nays, 49. Motion lost.

The original motion was then put and Albany was selected as the place of the next meeting, by a vote of 53 ayes to 10 nays.

Dr. Wall moved, and it was seconded, that the meeting be held during the second week in October.

Dr. Townsend suggested the third Tuesday in April as a better time, as it would not interfere with the District Branch and County Society Annual Meetings, which were held in the fall. It was early enough not to interfere with the annual meetings of the various National Societies. At that time the roads were open and the climate generally agreeable. The result of the winter's work could be summed up. Delegates to the American Medical Association could state with more certainty whether or not they would be able to attend. Work was not so pressing and the members of the Society would welcome a few days' vacation.

Dr. Wall withdrew his motion and moved, and it was seconded, that the next meeting of the Society be held on the third Tuesday in April, 1911. Carried by a vote of 61 ayes to 2 nays.

Dr. Wall gave notice that at the next meeting of the House of Delegates he would move that the time and place of the Annual Meeting be changed.

The chair stated that the matter would have to go over till next year in accordance with the Constitution as amended.

The place of meeting having been determined, Dr. W. J. Nellis was nominated for Chairman of the Committee on Arrangements. There being no other nominees, the by-laws were suspended by unanimous consent and the Secretary was instructed to cast one ballot for Dr. Nellis, and he was declared duly elected Chairman of the Committee on Arrangements for the ensuing year.

The Secretary read the following communication from the Schuyler County Medical Society:

"Montour Falls, N. Y., January 21, 1910.

At the semi-annual meeting of the Schuyler Medical Society, held October 21, 1909, on motion of Dr. J. F. Barnes the following memorial was ordered sent to our representatives in the State Legislature and their aid solicited to secure its enactment into law.

(Signed) John M. Quirk.

Secretary Schuyler County Medical Society."

"Reasons why a legally qualified practitioner of medicine should have the right and privilege to instruct and train his or her own nurses, and such nurses have proper credit for such work with the Board of Regents or the Department of Education of the State of New York.

"1. The practitioner is the legally responsible party in the treatment of patients and the nurses are a part of his or her armamentarium. (Carpenter vs. Black, 10 Hun., 358, and 60 Barb., 488.)

"2. The direction for the care and management therefore of cases should be under his or her control and applies to Gynecologic, Medical, Obstetric, and Surgical, whether in private practice or Institutional work.

3. A legally qualified practitioner who has had three or more years' experience in Sanatorium or Hospital work understands the needs of the work and the Institution of which he or she has charge better than any one else and should have credit with



## Medical Society of the State of New York

Minutes of the One Hundred and Fourth Annual Meeting held at Albany, January 25th and 26th, 1910.

### SCIENTIFIC MEETING

#### January 25th, 1910—First Day—Morning Session.

The Society met in the Common Council Chamber, City Hall, and was called to order at 10:30 A. M. by the President, Dr. Charles G. Stockton, of Buffalo. Prayer was offered by Rev. James Kittell, of Albany. The Secretary read the minutes of the last meeting, which were approved.

The list of delegates from other societies was read by the Secretary: Vermont State Medical Society, Dr. L. H. Ross, Bennington, and Dr. M. R. Crain, Rutland; Massachusetts Medical Society, Dr. Samuel B. Woodward, Worcester, and Dr. Arthur R. Crandall, Taunton; Connecticut Medical Society, Dr. David R. Lyman and Dr. L. W. Bacon, New Haven.

As neither of the Vice-Presidents was present, the President, Dr. Charles G. Stockton, called upon Dr. Bush to take the chair, after which he delivered his address.

Dr. Howard Fox, of New York, read a paper entitled "The Wasserman and the Nogouchi Complement Fixation Test in Leprosy."

Dr. Homer E. Smith, of Norwich, and Dr. L. A. Van Wagner, of Sherburne, read a joint paper on "Spleno-Medullary Leukemia: Its Treatment by Roentgen Therapy, with Report of a Case."

This paper was discussed by Drs. Alexander Lambert, L. H. Neuman, Henry L. Elsner, Allen A. Jones, Chas. O. Boswell, Arthur Holding, and the discussion closed by Dr. Smith.

Dr. Chas. O. Boswell, of Rochester, followed with a paper entitled "Some Remarks on Anemias," which was discussed by Drs. Egbert Le Fevre, Abraham Jacobi, and in closing by the essayist.

Dr. Eli H. Long, of Buffalo, read a paper entitled "The United States Pharmacopœia: Its Present Status and the Coming Revision."

Dr. Rosalie Slaughter Morton, of New York, read a short paper in which she presented a plan of work of the Woman's Public Health Education Committee of the American Medical Association.

Dr. Henry L. Elsner, of Syracuse, delivered an "In Memoriam" on Hamilton D. Wey, Elmira, after which the Society adjourned until 2:15 P. M.

#### FIRST DAY—AFTERNOON SESSION.

The Society reassembled at 2:15 P. M., and was called to order by the President.

Dr. R. Abrahams, of New York, read a paper on the "Elements of Prognosis in Valvular Diseases of the Heart."

Dr. Wesley T. Mulligan, of Rochester, read a paper on "Dilatation of the Heart."

These two papers were discussed by Dr. Allen A. Jones.

Dr. Arthur T. Laird, of Albany, read a paper entitled "The Clinical Significance of Subfebrile Temperature in Pulmonary Tuberculosis."

Dr. M. Neustaedter, of New York, presented a "Contribution to the Study of Tremors."

This paper was discussed by Drs. H. L. Elsner and Allen A. Jones, and in closing by the essayist.

Dr. Nelson G. Russell, of Buffalo, read a paper on "Lumbar Puncture as a Diagnostic and Therapeutic Agent in General Practice," which was discussed by Dr. Irving M. Snow, and the discussion closed by the author of the paper.

Dr. Simon Flexner, of New York, spoke on "Experimental Poliomyelitis and its Bearing Upon Epidemic Poliomyelitis."

Dr. Flexner's remarks were discussed by Drs. Richard R. Crain and Joseph Collins.

Dr. Joseph Collins, of New York, spoke on the "Adequacy of the Present Day Treatment of Syphilis Tested by the Occurrence of Syphilitic Nervous Diseases."

The paper was discussed by Drs. L. Duncan Bulkley and A. A. Young, and in closing by Dr. Collins.

Dr. L. Duncan Bulkley, of New York, read a paper entitled "Effects of Alcohol as Observed in Dermatology," after which the Society adjourned until 8:00 P. M.

#### FIRST DAY—EVENING SESSION.

The Society reassembled at 8:00 P. M., with the third Vice-President, Dr. J. B. Harvie, in the chair.

Dr. Leonard W. Ely, of New York, read a paper entitled "Tuberculosis of the Bones and Joints."

Discussed by Dr. Reginald H. Sayre and Nathan Jacobson, and in closing by the author.

Dr. Egbert Le Fevre, of New York, read a paper entitled "The Rheumatisms: Their Etiology and Pathology."

Dr. Henry L. Elsner, of Syracuse, read a paper on "Osteitis Deformans (Paget's Disease), with Report of Two Cases."

Discussed by Dr. Wisner R. Townsend, and in closing by the essayist.

Dr. C. H. Lavinder, of Washington, D. C., spoke on "Pellagra," illustrated by stereopticon slides.

Dr. Clarence E. Coon, of Syracuse, gave numerous lantern slide demonstrations of X-ray pictures of osteitis deformans and of stomach and intestinal work with bismuth.

On motion, the Society adjourned until 9:00 A. M. Wednesday.

#### JANUARY 26, 1910—SECOND DAY—MORNING SESSION.

The Society met at 9:00 A. M., and was called to order by President Stockton.

Dr. Joseph Merzbach, of Brooklyn, read a paper on "The Relationship Between the State Board of Regents and Training Schools."

Dr. Chas. Stover, of Amsterdam, followed with a paper entitled "Some Unsolved Problems in Relation to Nurses' Training Schools."

These two papers were discussed together by Drs. David R. Bowen, H. W. Barber, W. H. Potter, J. P. Creveling and Mr. A. S. Downing, First Assistant Commissioner, Education Department State of New York.

Dr. H. W. Barber moved, and Dr. H. L. Hulett seconded, that a committee of three or five be appointed by the Society to confer with a similar committee from the Board of Regents with regard to this matter. Referred by the chair to the Council.

Dr. Anthony Bassler, of New York, read a paper entitled the "Test Meal and Feces Examination: Some New Methods and Their Clinical Value."

Dr. Le Roy Broun, of New York, read a paper entitled "The Importance of Care in Closing the Abdominal Incision."

Discussed by Drs. J. T. W. Whitbeck and Walter B. Chase.

Dr. William S. Thomas, of New York, read a paper on "The Chauffeur's Fracture."

Dr. Frank De Witt Reese, of Cortland, read a paper entitled "Shall All Fibroid Tumors of the Uterus be Removed with the Knife?"

### SYMPOSIUM ON VACCINE.

Papers were read as follows:

"A Case of Human Glanders Treated by an Auto-genous Vaccine with Recovery," by Dr. A. T. Bristow, of Brooklyn, and by Benjamin White, of Brooklyn.

"Treatment of Surgical Tuberculosis by Vaccines," by Dr. James A. McLeod, of Buffalo.

"Vaccine Treatment of Surgical Tuberculosis," by Dr. L. L. McArthur, of Chicago (by invitation).

"Vaccine Therapy," by Dr. Frank Billings, of Chicago (by invitation).

At the conclusion of Dr. Billings' paper, Dr. A. T. Bristow said: "When two men who are as busy as Dr. McArthur and Dr. Billings, of Chicago, will take the trouble in the height of a busy season to read two exhaustive papers on so new and important a subject as this; and when, in addition to that, they have traveled eight hundred miles in midwinter, it seems to me this Society can do no more than, by a rising vote, testify its appreciation of their services, and I so move, Mr. President."

This motion was seconded by several and unanimously carried by the members of the Society rising.

The discussion on the symposium was then opened by Dr. Norman K. McLeod, and continued by Drs. Chas. N. Dowd, Allen A. Jones, Robert T. Morris, Joseph D. Olin, and closed by Drs. McLeod, McArthur, and Billings, after which the Society adjourned until 2:15 P. M.

### SECOND DAY—AFTERNOON SESSION.

The Society reassembled at 2:15, and was called to order by the President.

Dr. Walter B. Chase, of Brooklyn, read a paper entitled "The Duty the Medical Profession Owes to Women with Uterine Cancer."

At the conclusion of his paper, Dr. Chase offered the following resolution, which was referred to the council for action:

"In view of these facts it is Resolved:

"First. That the Medical Society of the State of New York shall appoint a committee of four, whose duty shall be to urge on all practitioners of medicine in this State, greater care in making early diagnosis in cases of suspected uterine cancers.

"Second. Resolved, That this Committee be directed to devise some method by which, along ethical lines, women may be properly informed as to the reason why they should seek early professional advice in menstrual disorders; and that they are further instructed to consider some more comprehensive plan, whereby a general diffusion of appropriate and vital knowledge may be promulgated on this very important subject.

"Third. Resolved, That this Committee be directed to report its recommendations at the next meeting of the Society.

"Fourth. Resolved, That the Treasurer of this Society be directed to honor payment of bills incurred for printing and needful correspondence (if not otherwise provided for), and that this Committee be empowered to fill vacancies in its membership, and appoint sub-committees, if deemed expedient."

Dr. Brainerd Hunt Whitbeck, of New York, read a paper on "Treatment of Potts' Disease."

### SYMPOSIUM ON APPENDICITIS UNDER THE AUSPICES OF THE NEW YORK SURGICAL SOCIETY.

Papers were read as follows:

"Appendicitis in Children," by Dr. Chas. N. Dowd, of New York.

"Masked Appendicitis," by Dr. George E. Brewer, of New York.

"Conditions Simulating Appendicitis," by Dr. A. B. Johnson, of New York.

"When to Operate in Appendicitis," by Dr. Joseph A. Blake, of New York, which was read by Dr. Clarence A. McWilliams in the absence of the author.

Dr. Clarence A. McWilliams, of New York, followed with a paper entitled "Deductions to be Made from 1,000 Hospital Cases."

"Appendicitis," by Dr. Roswell Park, of Buffalo.

Before proceeding to discuss the symposium on appendicitis, Dr. Stockton introduced his successor, Dr. Charles Jewett.

Dr. Jewett said: "Mr. President and Members—I must thank you for the great honor you have conferred on me—the greatest gift of medicine in the State. I accept it with a full sense of the responsibility which it carries with it. I can only pledge you my best efforts to make the year a successful one. With the cabinet which surrounds the executive, and with your support, the task, I trust, may not be impossible." (Applause.)

The discussion of the symposium on appendicitis was opened by Dr. Edwin MacDonald Stanton, and continued by Drs. Robt. T. Morris, Abraham Jacobi, William W. Skinner, and closed by Drs. Dowd, Brewer, and Park.

Dr. Richard Ward Westbrook, of Brooklyn, read a paper entitled "Surgical Considerations of Acute Diffuse Phlegmonous Gastritis," which was discussed by Drs. Allen A. Jones, Anthony Bassler, and in closing by the author of the paper.

There being no further business to come before the meeting, on motion the Society then adjourned *sine die*.  
WISNER R. TOWNSEND, Secretary.

# NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

ALGERNON THOMAS BRISTOW, M.D., Editor  
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## EDITORIAL DEPARTMENT

### CHRISTIAN SCIENCE AND THE LAW.

**A**NOTHER of these grotesque tragedies of modern Voodooism has occurred to startle and disgust the community. A poor victim of her own credulity and the cupidty and folly of the practitioners of this strange cult perished after months of unrelieved agony, one hour after the "Healers" had pronounced her as "doing nicely." Thereupon the outraged and indignant husband violently ejected the "practitioner" and is now vigorously denouncing the Christian Scientists whom he blames for the death of his wife. The coroner in charge of the case says that there have been several deaths recently under similar circumstances, but states that the "Healers" have gone unpunished because their victims consented to the treatment and *they did not use medicine*. Is not the coroner in error as to the law? In May, 1907, the new Medical Practice Act defines the practice of medicine as follows:

"A person practices medicine within the meaning of this act, except as hereinafter stated, who holds himself out as being able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition and who shall either offer or undertake by *any means or method*, to diagnose, treat, operate or prescribe for any human disease, pain, injury or deformity or physical condition."

It is not necessary, therefore, that a person should prescribe drugs to come within the sweep of this law. The magic boots man is liable under this statute, although he was held to be immune under the old. Christian Scientists are therefore practising medicine without a license when they undertake to cure disease in others "by any means or method." Is there any clause in the statute

which gives them an immunity bath and permits them to practice medicine without a license? Section 14, Construction of this Act, provides as follows:

"This article shall not be construed to affect the practice of the religious tenets of any church."

To what extent does this protect the Healers in their incantations and serio-comic mummery? They certainly cannot violate the rules of the Department of Health with regard to contagious diseases. Thus the father of a child who died of diphtheria under Christian Science was sentenced to 30 days on the Island (N. Y. *Times*, March 24th). In such cases the State clearly has the right to intervene on the ground that no sect or religion has under this or any other statute the right to imperil others by the practice of its peculiar tenets.

To what extent then should this clause protect the Christian Scientists? What is the practice of the religious tenets of any church? Is the practice of medicine under the act the practice of the tenets of any religion?

We have always been jealous in the extreme concerning religious liberty in this country, yet we have found it necessary to invoke the law to regulate the religious acts of certain sects.

Plural marriage was and is to-day the practice of a religious belief, yet Congress has suppressed polygamy and it is to-day a felony in Utah as in any other part of the country. The Doukhobors, strange emigrès from Russia, have given our neighbors, the Canadians, much trouble. Among other odd and insane beliefs, they think it wrong to wear clothes and persisted

in going about naked in the snows of a Canadian winter until the authorities intervened. England has had similar difficulties in India. She put a stop to the Suttee, although this was clearly the practice of a religious tenet and a voluntary act on the part of the widow. Those weird devotees of Siva, the Thugs, thought they were engaged in the laudable worship of their divinity when they strangled innocent strangers as a sacrifice to their blood-stained god, yet England stamped out the religious practices of that peculiar sect by a few summary executions. No nation, however, has been more careful to permit the fullest religious liberty in her colonies than has England. Both England and America have been obliged to interfere to regulate the practices of certain religious sects, nor has the interference always been on the ground that the rights of society were being infringed or the public health endangered. Thus the Suttee was a religious act, a voluntary act, and endangered no other life. It was, to be sure, suicide, which was against the English law, illegal under Anglo-Saxon jurisprudence, but under Hindoo law, under the circumstances, a highly meritorious act. Who questions the justice of England's course in suppressing the Suttee?

Was not plural marriage a voluntary act on the part of the woman? Was it not a religious act? Did it interfere with the rights of married women in other states? Who questions the wisdom of Congress which made polygamy a felony in Utah? Religious liberty does not mean religious license, nor the denial of the rights of the majority and of the State by the devotees of a particular sect. The exercise of religious liberty does not involve the right to break either the law of the land or the ordinances of municipalities on the plea that such infractions are the practice of a religious tenet.

The State of New York has defined the practice of medicine in set and unmistakable terms. It does not assume to dictate as to methods of healing. It simply says to those individuals who wish to practice medicine that they must be familiar with the natural history of disease and the laws of physiology. Having proved to the satisfaction of the State that they are familiar with these essentials, the State leaves the question of therapeutics to the individual. But says the Christian Scientist, "There is no such thing as disease. It is nothing but mortal error, an evil imagination due to mental aberration and belief." Cannot the State make the logical rejoinder that

if there is no such thing as disease the Christian Scientist who proffers to cure disease by mental treatment is not only inconsistent, but in demanding large sums for such treatment, dishonest as well?

Christ indeed went about healing the sick, but we do not read that He dwelt in marble halls or that His relatives fought over the disposition of His fortune. "The birds of the air have nests and the foxes have holes, but the Son of Man hath not where to lay His head." Such was His pathetic exclamation. Neither the High Priestess of Christian Science nor her thrifty votaries have ever practiced what Christ preached and practiced Himself. They practice mental healing of disease, whose existence they deny, for a fee, but by violence to logic only can this be called the practice of the tenets of religion. It is the practice of medicine as defined by the statute, and they are amenable to its penalties if the law is enforced against them as it should be. The practitioners of Christian Science should be compelled to pass the same examination that other practitioners pass willingly, and they should not be allowed to evade the law and amass fortunes from their dupes under the sneaking and hypocritical plea that mental healing is a religious act and that, therefore, they should not be interfered with in their insane and stupid mummeries.

A. T. B.

#### A NEW MOVE BY THE ANTIVIVISECTIONISTS.

THOSE opposed to vivisection are endeavoring to keep up the agitation by the introduction of the Bayne-Goodspeed bill, which provides for the appointment by the Governor of a partisan commission to investigate animal experimentation in the laboratories of the State. They are thus repeating the tactics of their English predecessors, who on two occasions, in 1875 and 1906, have resorted to governmental commissions of investigation in order to accomplish their purposes. The two English commissions have taught us a very useful and suggestive lesson. They both failed to demonstrate that scientific men employ cruel methods, but not for a moment has this fact served to diminish the ardor of those who constitutionally oppose animal experimentation. Their activities have rather been augmented and they have constantly made wicked use of the information obtained through the official inquiries by misleading or partial quotations. No one should support the new bill in the hope that it will in any way allay the agitation against animal experimentation. It should not be passed. The action taken by the Richmond County Medical Society should be commended by all.\* W. R. T.

\* See page 214.

## Original Articles

### ELEMENTS OF PROGNOSIS IN CHRONIC VALVULAR DISEASE OF THE HEART.\*

By R. ABRAHAMS, M.D.  
NEW YORK.

A STORY is told about a popular physician, who lives and practices in a well-known resort for consumptives in this State. A woman called at his office on a Monday morning to get his opinion about her lungs. After due and careful examination the doctor told her that the lungs are in bad shape, and that she can only live until Wednesday afternoon. "For God's sake," pleaded the woman, "Can't you make it Thursday afternoon, as I have some business to settle."

Such shining examples of prognostic accuracy are not peculiar to this mathematical colleague alone. Concerning the prognosis in valvular disease of the heart, we occasionally read that a case of aortic insufficiency can only live ten years from the time the diagnosis is made, or that mitral stenosis must end life in the third decade. As a matter of fact, the prognosis in heart disease, no matter what and where the lesion is, can never be given with arithmetical precision. The best that one can do when one is pressed for an opinion, is to say, from existing conditions, whether the end is near or far. The prognosis should always be couched in approximate terms.

Considering this method to be safe and sane, we shall enter upon a discussion of the elements of prognosis in valvular disease of the heart.

A tendency to weakness and failure on one hand, and strength and recuperation on the other seems to be, and is, inherent in the heart outside of all other conditions.

The healthy heart is endowed with tremendous *reserve power*, rendering it equal to all occasions of exercise and exertion, sickness and excesses. This reserve power is continued in some hearts to the last syllable of defect and deformity, and constitutes a great and important element of resistance to the deleterious effects consequent upon organic disturbances of the valves. Conversely the loss of this vital reserve power removes the resisting element, and then the heart at once becomes a prey to all the dangerous sequelæ of defective valves.

To refer to one out of a dozen or more cases for example and illustration: Eighteen years ago I examined a man 25 years old, who had then a well marked aortic insufficiency. In the course of a few years he developed successively aortic stenosis, mitral insufficiency and mitral stenosis. With this crippled heart, he went through pneumonia twice, one attack complicated

with pleurisy with effusion as well as a few moderately severe attacks of articular rheumatism. He still lives, works and propagates his species.

In order to properly estimate the value of the resisting power and give it its due weight in prognosis, two elements are essential: *Heredity* and *anemia*. Heredity in valvular disease of the heart looms almost as high as it does in pulmonary tuberculosis, both from the standpoint of acquisition and termination. A patient who can give a negative family history concerning heart disease, offers a much better prognosis than one who is not so lucky. The latter is a bad risk from the very inception of the disease. Anemia constitutes an index to the patient's general condition, to his resisting power and incidentally to the condition of the heart muscle. Anemia is frequently associated with valvular disease but its prognostic value is in proportion to its late or early arrival, to its mild or severe form, and lastly to the manner in which it behaves towards treatment. Anemia that appears early in the disease, deepens with time and is stubborn to treatment, will quickly destroy every vestige of resistance in the heart and speedily yield to the ravages of the disease. This is particularly true in the case of aortic insufficiency. The converse of that argues in favor of a good prognosis.

The state of the *heart muscle* demands careful study in the prognosis of valvular disease. The heart muscle is the driving force of the heart and many, if not all, of the difficulties and consequences of valvular disease begin and end with the bad condition of the myocardium.

Hypertrophy no less than dilation represents an abnormal condition. Hypertrophy, however, is constructive, while dilation is destructive. If hypertrophy was never followed by dilation, every form of valvular disease would be as benign as aortic stenosis, in which disease the highest type of hypertrophy exists. Or to put it differently, a form of valvular disease in which hypertrophy with slight dilation is found for the longest part of the patient's life, the outlook is extremely encouraging. The consideration of the effect of hypertrophy and dilation on the heart muscle, and the condition of the latter on prognosis are of such vital importance that a brief review of the various states and stages of valvular lesions is highly pertinent to the discussion.

Early in the disease of the mitral valves, there is neither hypertrophy nor dilation and the myocardium remains intact. This is evidenced by the negative findings of percussion and the presence of the apex in the normal position.

At this state of the heart and stage of disease the prognosis is excellent. Sooner or later the defective valves begin to manifest their sequelæ, both objective and subjective; here the heart muscle steps in the breach, and to meet the demands, it becomes hypertrophied; but the hypertrophy is not destined to remain alone in the field

\* Read at the annual meeting of the Medical Society of the State of New York, January 25, 1910.

for any length of time. Dilation sets in. Now, as long as the two maintain an equal balance, though the myocardium be altered, the prognosis continues uninterrupted good. When the balance, however, is lost so that dilation is greater than hypertrophy, or when from the very beginning of the second stage of the disease there is more dilation than hypertrophy, then the myocardium becomes a menace to prognosis, the diseased valves enter the third stage and the case drifts rapidly to a perilous termination.

In the disease of the aortic valves the size of the heart may continue normal for a comparatively long time though the pulse and murmur in either insufficiency or stenosis become pathognomonic from the very beginning. In this stage the prognosis as far as it is influenced by the myocardium is excellent. In a more advanced stage the myocardium shows changes. In aortic stenosis the heart muscle becomes hypertrophied and if the lesion remains uncomplicated, the hypertrophy continues unto death, which is long delayed. Even if there be some dilation, the amount is so small that it becomes negligible from the standpoint of prognosis. In aortic insufficiency hypertrophy is enormous and dilation goes hand in hand with it.

During the progressive enlargement of the heart, the muscle suffers great changes. These changes are in line of degeneration and when the process has reached its limit of pathological endurance, the myocardium becomes a ready prey to acute dilation with perhaps sudden death as a climax.

It would be interesting to describe in detail the physical signs which characterize each stage of the myocardium in the various valvular lesions, but a discussion of that subject is out of place in this paper.

The condition of the *arterial system* as an element of prognosis in valvular disease is next in importance to the condition of the heart muscle. Besides the inherent danger of sclerotic blood vessels, their narrowed caliber and inelastic walls throw additional work on a heart that labors under the disadvantages of defective valves. Again, diseased arteries are poor canals for carrying nutritive media to the body in general and the heart muscle in particular. However, the arterial system as an element of prognosis should be studied not so much with a view as to their condition prevailing at the time of the patient's examination, than as to when the changes in the blood vessels occurred, before, during or after the establishment of the valvular disease. Valvular disease in the absence of arterial changes offers a splendid prognosis. This beneficent condition frequently exists in mitral disease. Indeed we see it much oftener than in aortic disease, in which arterial changes, especially in aortic insufficiency, are almost the rule. Within the last ten years or more I had frequent occasions to

attend very aged people admitted to the Home of the Daughters of Jacob. The youngest in that institution is 75 and the oldest claims the distinction to have seen "the first Napoleon invade the Capital of Russia." It is no uncommon experience to find a mitral lesion, usually of the type of incompetency, in a very old man or woman with no palpable or visible trace of vascular hardening whatsoever. Indeed, I counted an octogenarian among my aged clientele in that worthy Home who was blissfully unconscious of a pure and uncomplicated aortic insufficiency. He had no changes in the arteries as far as touch and sight could ascertain. In all these people I took pains to determine that the lesions of their valves have been almost the companions of their life. May it not be possible that the power of resistance which was alluded to above extended to and affected the whole cardio-vascular apparatus in these few lucky people. As to the great majority of valvular victims I would venture the following conclusion and classification:

Class A.—Young people (20-30) in whom arterial changes antedated the development of valvular disease, offer a poor prognosis.

Class B.—Young people (20-30) with valvular disease who show subsequently arterial changes are as bad as Class A. This class of patients, I believe are greatly on the increase.

Class C.—Young people with valvular disease but with no sign of arterial changes can count on a good prognosis.

Class D.—Middle-aged people (35-50) with valvular disease will stand well the hardening process of the arteries as long as the vascular apparatus of the kidneys remain unaffected. The prognosis is growing poor in proportion to changes in the renal blood vessels.

Class E.—People beyond sixty, to my mind, rarely acquire valvular disease through the medium of infection. Their valvular defects are preceded and caused by atheroma. The prognosis in that class of subjects is rather good. I have seen more middle-aged people die of valvular lesions than old people. I have seen many men and women whose age exceeded by ten or twenty the biblical allotment of threescore and ten, living comfortably with all sorts of murmurs of the heart which, in young and middle-aged folk, would spell death in a short time.

*Etiologic influences* on prognosis merit more than passing interest. *Articular rheumatism* is justly considered the nemesis of valvular disease of the heart in the young as well as in the more advanced in years. Yet, in estimating rheumatism as a factor in prognosis of disease of the valves, one must bear in mind the severity and frequency of the attacks. For example: Case A. suffers an acute attack of articular rheumatism involving one or more joints and producing endocardial disease. A short while after, another attack sets in and perhaps another and still an-



other. Each attack adds further insult to the previously damaged valves and injury to the new ones. In the course of one or two years all the valves of the left heart are crippled and ruined and perhaps the heart muscle degenerated. In a case like this the etiological element in the prognosis is irreparably bad.

Case B. suffers one severe rheumatic attack throwing the mitral apparatus out of gear but suffers no more attacks. In this case the etiological element in the prognosis is good.

Case C. denies that he ever had rheumatism of the joints. It is only upon close questioning, one learns, that while he had no severe attack of rheumatism sufficient to disable him, yet he can remember having had, or perhaps still has, some sort of fleeting, jumping, transitory pain, wandering hither and thither from one joint to another. On examining the heart, not one, but many lesions of the valves are found of a most destructive nature. The etiological factor in the prognosis in a case of this description is distinctly unfavorable. The virus of this type of rheumatism behaves in the adult as it frequently does in infants and children. Namely, it chooses the heart for its target and poisons and cripples it, one might almost say, while the patient is asleep. Medical advice is sought only when severe symptoms are ushered in, or perchance the victim discovers the damaged heart through a life insurance rejection. Such cases are very plentiful in our large metropolitan clinics. Such cases through the insidious character of the onset have been denied the usual advantages of rest and care calculated to cure the valve that is damaged and prevent injury to the valve that still enjoys health.

*Influenza* is responsible for valvular disease. When such disease results from the grippe, the prognosis is poor, for the following reasons: (1) because influenza produces and induces affections of the lungs; (2) because influenza deranges the renal system, and (3) because influenza leaves the myocardium in a bad state.

*Syphilis* produces disease of the valves mostly, if not wholly, of the aortic variety, but as an element of prognosis it is quite favorable. For years and years beneficial results were obtained empirically in aortic disease from the administration of the iodides. The Wasserman reaction may strengthen the belief in the luetic origin of aortic trouble so that the assured knowledge of the cause will prompt specific treatment early, and make a favorable prognosis more probable.

Of the common infectious diseases, *typhoid fever* and *diphtheria* are factors to be reckoned with in the etiology of the valvular disease, and because of their known tendency to undermine the heart muscle they constitute no mean element in prognosis.

*Measles* and *scarlet fever* occasionally produce defects of the valves. Their importance on prog-

nosis depends on the production of sequelæ, in one the lungs and in the other the kidneys.

Among *associate diseases* which play an important role in the prognosis, those of pulmonary origin will be discussed first. In relative importance, pneumonia ranks highest. The well known tendency of pneumonia to cause dilatation of the right heart during the course of the inflammatory and infectious process of the lungs, is likely at any time to become fatally accentuated in the presence of valvular imperfection. It is true that here and there a patient with bad valves will survive an attack of pneumonia; the rule, however, holds good with the great majority in whom the mortality is very high. In influenzal pneumonia, this rule practically has no exception. In the case of patients beyond sixty, who are afflicted with disease of the valves, the occurrence of pneumonia is a signal for the gravest apprehension.

While it is well to keep the ear over the pulmonic area in every form of pneumonia uncomplicated with endocardial disease, when pneumonia is planted on mitral disease, let all senses, as it were, be concentrated on the pulmonic second sound.

*Pulmonary tuberculosis* with its baneful effects such as emaciation, anemia, pyrexia, must necessarily be regarded a serious element in prognosis of valvular disease. The heart of a consumptive is weak, flabby and excited. In the face of valvular affection the condition of the poor organ is rendered manifoldly worse. The silver lining behind the cloud is the rare association of valvular disease of the left heart with pulmonary tuberculosis. I have a firm conviction that victims of acquired heart disease enjoy immunity from tuberculosis of the lungs. I can see the possibility of the occurrence of relative mitral insufficiency as well as tricuspid insufficiency, owing to mechanical dilatation of both chambers of the heart, but of the hundreds of cases of disease of the valves which came under my notice, I can count on the fingers of one hand the number of cases of pulmonary tuberculosis which either preceded or followed the affection of the valves. The exception to this observation is congenital stenosis of the pulmonary artery.

*Emphysema* of the lungs ranks high as an element of prognosis. This frequent affection of the respiratory apparatus, from its very inception throws a heavy burden on the right heart; and when it supervenes or complicates mitral disease the struggling heart has small chance to survive long.

The reciprocal influence which exists between the heart and kidneys is too well known to require much time in pointing out the serious element of prognosis, when renal disease is established in the face of valvular disease. Renal disease is a formidable element in aortic insufficiency. The enormous hypertrophy of the left ventricle that goes with that disease, is but mani-

foldly augmented by the vascular resistance in the affected kidney. This added hypertrophy and increased work on the part of the interested ventricle, will, all the sooner wear it out and produce a slow but irreparable, or a rapid and fatal dilatation. The violent action of the immense heart gravely endangers the small sclerosed cerebral blood vessels. The contracted kidney, however, constitutes the most dangerous element in the prognosis of disease of the valves of one or all forms.

The status of the kidney in disease of the valves can, I think, be put in the following way: Notwithstanding the intimate relation between the two, renal disease is not necessarily an invariable accompaniment of valvular disease. Many patients with valvular defects show no signs of kidney involvement. During the course of valvular trouble, some albumen and a few scattered inconsequential casts will be detected in the urine, all of which, however, may disappear with or without treatment. Under such circumstances the kidney may be regarded as a rather remote factor in the prognosis of valvular disease. In a fair percentage of fairly well advanced cases of valvular disturbance some form of kidney disease *will* develop, mostly that of chronic exudative nephritis. In such cases the renal derangement becomes quite an important, though not very dangerous, element in the outcome of the disease of the valves. In some instances of bad valves, renal complications suddenly set in, either as a new disease, or as an awakening of a mild and dormant, but hitherto unrecognized condition. Then, like a bolt from a clear sky, it violently deranges the even course of the valvular disease and kills the patient with unmerciful rapidity. There is established at once œdema of the face, suppression of urine, dyspnoea, cyanosis, œdema of the lungs and death. I have rarely seen convulsions as a feature of this death-dealing picture.

*Pericarditis* with adhesions is a very serious element in prognosis. The gravity of that condition is due to the fact that it interferes with the action of the heart and eventually produces myocardial degeneration.

Gall bladder disease deserves serious study in its relation to prognosis of valvular disease. I have noticed in a few instances of biliary colic occurring in subjects affected with mitral disease, that during the attacks, and a few days thereafter, they suffered from irregular heart action, dyspnoeas and cyanosis. In one instance of mitral stenosis the contributing cause of death was repeated attacks of severe biliary colic.

*Metabolic* perversions causing intestinal putrefaction can be placed on the list of factors of prognosis. This subject deserves more than mere mention, but space and time compel me to pass on to the review of signs and symptoms.

The aid derived from the behavior of the *pulse*, in the study of the subject in question, cannot be

overestimated. With the invention and discovery of new appliances to the study of the heart in health and disease, one feels fossilized in the attempt to say a word of recommendation for the pulse. Still, even at the risk of being considered old-fashioned, I will say to everybody within and without the hearing of my voice: "Go back to the good old pulse and study it in the good old way and you shall save many of the costly new fads and fancies."

To fully understand the value of the pulse as an element of prognosis in diseases of the valves, I deem it essential to first point out its value in diagnosis in the same class of cases. The salient feature of the pulse, which is intended here to emphasize, is the effect produced on it by raising the arm above the head, keeping the arm clear in a vertical position. A normal pulse will show no difference, either in volume, rhythm or rate whether the arm is in the horizontal or vertical position. In disease of the valves the difference in some lesions, and in some stages of the lesions, is to my mind, most striking if not pathognomonic.

In the early stage of mitral disease and aortic stenosis, the pulse remains the same with the arm in either position. In aortic insufficiency the jerking and collapsing qualities of the Corrigan pulse are appreciable in the very dawn so to speak, of the valvular deformity. These acquired, never failing qualities of the pulse, are palpably accentuated when the arm is raised above the head quite early in the disease, but, most markedly emphasized as the disease advances. Now, in mitral insufficiency as soon as it passes its first stage, though the compensation be ever so good, the pulse diminishes somewhat in quality when the arm is raised above the head. In the event of failing compensation the pulse with the arm raised, shows a very decided diminution; and when compensation completely breaks, the pulse entirely disappears though it is felt with the arm in the horizontal position.

The same holds true in mitral stenosis, only that in a good many cases in that affection, the pulse disappears in the upright arm before complete failure of compensation has taken place. In aortic stenosis there is no change in the pulse for a long time, no matter in which position the arm is placed. The pulse remains slow and drawn out. A change is perceptible when dilatation sets in, then the pulse first diminishes and then disappears in the arm vertically held. The pulse of aortic insufficiency will remain typical as described above to the last minute, provided the lesion remains uncomplicated. In the event of complications the pulse is true to its character but is not so characteristic. So much for the pulse in diagnosis.

Now as to its value in prognosis. To take mitral diseases first: The prognosis is excellent as long as the pulse is the same, both in quality and in volume, in either position of the arm

The prognosis is not so good when the pulse shows some diminution in quality in the erect arm. The prognosis is unfavorable, when the pulse persistently grows smaller in the raised arm, and when the pulse absolutely disappears in the vertical position of the arm, the prognosis is distinctly bad.

There is a saving grace for the pulse last mentioned, and that is, how well it responds to digitalis or other cardiac stimulant. There is hope for a better prognosis when it revives and makes itself felt again in the raised arm. If, however, it does not, or if it does, but in a few days it falls back to effacement, the prognosis is unfavorable. The same can be said for the pulse of mitral stenosis with the additional observation, that in mitral stenosis, the pulse will disappear much earlier in the disease in the raised arm. The reason for this is that compensation in stenosis breaks sooner than in insufficiency.

*Angina pectoris* is a most formidable factor in prognosis of diseased valves. It is important, however, to be positive about the true character of the precordial pain, before the diagnosis of *angina pectoris* is made, as some patients with valvular disease will refer all sorts of pain to the heart. But when the true nature of the pain is ascertained, and when it points unmistakably to *angina pectoris*, the prognosis of the disease of the valves is extremely bad. It is important to remember in this connection that *angina pectoris* is an extremely rare condition in all forms of valvular trouble, and it is infinitely more rare in mitral affections. Aortic insufficiency claims the companionship of *angina pectoris*, fortunately but once in a great while.

The *murmur* has great prognostic significance. A murmur does not entirely displace the first sound of the heart in case of mitral systolic, and second sound of the heart in case of aortic diastolic, is a murmur that promises a good prognosis. It shows one of two things: Either the valves are not badly damaged, or that one valve is damaged giving rise to the murmur and the remaining valve or valves are still intact and thus helping to produce a part of the natural sound.

A murmur that is loud and well transmitted though it completely displaces the sound of the heart in the aortic or apical area, is a murmur which augurs a pretty good prognosis. The exception to this is sometimes found in young, emaciated children affected with valvular lesions, whose chests are like a music board, permitting murmurs to be heard from a distance, though death is fast approaching.

A murmur that has been strong and loud but which suddenly weakens, constitutes an element of a bad prognosis.

A weak murmur, but which responds to the stimulants and remains strong, offers a fair prognosis.

A weak murmur, which at first responds to a

stimulant but quickly returns to its old state, is a forerunner of a bad prognosis.

Cyanosis in valvular disease is a bad prognostic sign. Cyanosis indicates ventricular dilation and myocardial insufficiency. Its early appearance in mitral disease is of distinctly bad prognostic significance. In aortic insufficiency, cyanosis as a rule is absent, its occurrence predicates mitral complications as well as myocardial degeneration. Cyanosis is a grave prognostic sign when it refuses to yield to treatment, or when the bluish color of the lips, conjunctivæ, mucous membranes and finger tips, grows deeper and deeper. The reverse of this relatively argues in favor of a better prognosis.

Dyspnœa like cyanosis is an important element in prognosis. Their cause is pretty much the same and frequently both make their appearance at the same time. Cardiac dyspnœa is a dyspnœa of exertion. Even when compensation is perfectly well established in disease of the mitral valves, patients get out of breath after a little exercise. In aortic insufficiency, however, there is an absence of dyspnœa as long as the heart muscle is sound and the mitral valves are intact.

The following can be taken as a fairly accurate expression of the relation of dyspnœa to prognosis: Dyspnœa on exertion only is a negligible factor. Dyspnœa which is out of proportion to the amount of exertion is favorable, if it readily yields to treatment. It is unfavorable if it proves recalcitrant to treatment. Cardiac asthma which becomes continuous is an extremely serious factor in prognosis, for, sooner or later, it will merge into the dangerous and distressing form called orthopna. Very few patients with valvular disease survive long after the onset of the latter type of difficult breathing, though for a time they may appear better after treatment.

*Dropsy* is a late manifestation of defective valves. As is well known, dropsy rarely accompanies lesions of the aortic valves. In cases that it does, the prognosis is extremely bad. Under all circumstances, however, dropsical effusions are an unfavorable element in prognosis, yet the gravity depends on the quantity, on the response to treatment, and to the tendency to return soon after disappearance. Moderate œdema may be removed by simple treatment and life remains secure. Excessive œdema, unyielding effusions, or such that come back as quickly as are removed, are grim factors in prognosis.

*Age* as an element in prognosis could be formulated as follows: Mitral disease is the rule of childhood, the balance is in favor of the type of insufficiency. In the great majority of cases the prognosis for a long life is unfavorable. In spite of what is said by some clinicians to the contrary, I believe that it is the exception for a diseased valve to completely recover. A defective valve which apparently returns in childhood to the normal, shows later in life evidence of former disease. Valvular defects occurring in

adolescence and up to the age of thirty give a better prognosis in some but not in all forms. For example, mitral insufficiency is more favorable than stenosis, and the two are better than aortic insufficiency. Lesions which develop between thirty and fifty do not necessarily give a bad prognosis, provided conditions to be mentioned later are scrupulously observed. Lesions which show themselves first between fifty and seventy, which, in most cases, follow arterial changes, are prognostically more favorable than is commonly believed.

Sex is no small factor in prognosis. The most dangerous time for a female child with valvular disease is the period of puberty. In this state there is a general systemic disturbance in which the heart shows its participation by irritability and increased action. Uterine and ovarian activity as well as the awakened action of some of the ductless glands, witness the tumefaction of the thyroid at this period, increase the trouble of crippled valves and render the prognosis dangerous. Rest and quiet at this turbulent time are of the utmost importance. The same holds true in valvular disease around the other period of a woman's life, the menopause.

The other half of humanity could be divided in two classes. One class that is subjected to hard work, long hours and little recreation, the other class includes merchants, financiers and professional men, whose worry and hurry work havoc on weakened valves. Lastly, both men and women of all classes who are victims of diseased valves shorten their lives by vicious habits, namely: excessive smoking, alcoholism, overindulgence in coffee, tea and other indiscretions.

Pregnancy as an element of prognosis deserves much greater attention than it receives either from the general practitioner or obstetrician. Every valvular lesion is an element of danger in pregnancy, for during gestation even the normal heart labors under difficulties. Yet pregnancy is permissible in cases of mitral insufficiency and aortic stenosis. Pregnancy in the presence of either of the other lesions, aortic insufficiency or mitral stenosis, is a positive menace to life and should either not be permitted to take place, or if taken place, should be artificially terminated. I have seen women die of these lesions during and shortly after labor.

Last, but not least, *treatment* must be regarded as a vital element in prognosis. A physician who looks upon a murmur as:

"The rift within the lute,

Which soon shall make the music mute."

and thereupon belabors the diseased heart with powerful drugs, will contribute the gravest element to the prognosis. While the normal heart will resist the effects of drug stimulants, the abnormal, but well compensated heart, will soon be thrown out of its even tenor and followed by all the results of compensatory disturbance. Again, though treatment is indicated yet the right drug is

withheld. Or the right drug is given but the great and important factor of absolute rest, both of mind and body, is denied to the unfortunate patient.

These are all the elements of prognosis in chronic valvular disease of the heart which the writer sees fit to discuss.

As to the relative danger of the different valvular lesions, I would venture to place them in the following order, beginning with the most dangerous:

Aortic insufficiency.

Mitral stenosis.

Mitral insufficiency.

Aortic stenosis.

The relative danger of combined or double lesions can be arranged in the following order, beginning as in the order of single lesions with the most dangerous:

Aortic insufficiency and mitral stenosis (rare).

Aortic stenosis and mitral stenosis (rare).

Aortic stenosis and mitral insufficiency (comparatively frequent).

Aortic insufficiency and stenosis (fairly frequent).

Aortic and mitral insufficiency (common).

Mitral insufficiency and stenosis (common).

A detailed discussion of the bearing of these various double lesions on prognosis would entail too great a tax on the patience of my already indulgent audience, for which I could offer no reasonable excuse.

Regarding the valvular lesions of the right heart, their relation to prognosis could easily be estimated. Primary tricuspid stenosis is the rarest lesion in the whole field of cardiac pathology. As I must confess that I never met with it, it would be sheer presumption to consider its influence on prognosis. Primary tricuspid insufficiency is similarly rare and equally unknown to the writer. Relative tricuspid insufficiency is less uncommon. It is observed in bad cases of vesicular emphysema associated with chronic bronchitis. It is frequently seen as the last link in the chain of sequelæ in mitral insufficiency. Under all circumstances it adds grave elements to prognosis and perhaps forms the last nail in the coffin.

Defects in the pulmonary valves can only be discussed from the standpoint of congenital origin. The writer is familiar with six or seven cases of congenital stenosis of the pulmonary valves. His oldest patient died at the age of 24. One of 20 recently developed consumption and will soon die. In the remaining number the prognosis is equally unfavorable. The prognosis in this congenital affection is influenced by any extraneous conditions, it is bad on its own merits.

As a concluding remark, I am impelled to make a strong plea for a correct diagnosis, for, within its hollow, rests the key to prognosis and treatment.

## DILATATION OF THE HEART.\*

By WESLEY T. MULLIGAN, M.D.

ROCHESTER, N. Y.

AT birth the walls of the right and left ventricles of the heart have the same thickness but the greater demand on the left ventricle causes its dilatation and subsequently, hypertrophy. This hypertrophy is similar perhaps to that which occurs in the skeletal muscles due to exercise and is necessary, benign and welcome.

During this development the heart is excessively exercised only at intervals interspersed with rest. The heart hypertrophied from arterio-sclerosis, however, is in an entirely different position; more work is heaped upon it continuously; it is never free from overwork, and how long it will be able to continue depends entirely on its reserve force, which can never be estimated. Insufficiency occurs and even death, sometimes very suddenly, without any premonition at all, as in deteriorated conditions following acute infectious diseases. At other times varying degrees of dilatation occur, followed by improvement in the muscle of the heart—recession and good recovery.

Dilatation subsequent to arterio-sclerosis, increased vasomotor resistance, hypertrophy, and finally, exhaustion of the reserve force is almost always followed by hopeless incompetency. Dilatation from over-exertion may also occur. In this case the right ventricle is most often effected. In case of dilatation due to this cause there may have been a previous lesion, but there are cases reported in which the heart was sound up to the time of the acute passive dilatation. McKenzie gives as the cause of dilatation of the heart "depression of tonicity," but this condition is brought about by many causes. Those most commonly recognized are mal-formation or disease of the myocardium, psychical and nervous excitement, grief or loss of fortune, prolonged or uncontrollable laughter, frequent and prolonged efforts at coughing, excessive venery, gluttony in eating and drinking of malt liquors. Coffee also has been known to be a cause.

Toxic influences are often causative, as in nephritis and Basedow's disease. Over-exertion is a well recognized cause of over distension of the heart.

I will not go deeply into the pathology, suffice it to say, that the most important changes in the muscle cells are granular, hyaline and fatty degeneration.

A considerable amount of degeneration is not incompatible with preserved function, but the condition due to bacterial infection is dangerous on account of the toxic injury to the muscle.

The symptoms are,—increased size of the heart, alterations in the character of the move-

ments of the heart and murmurs, failure of circulation in the remote organs and tissues, producing dropsy, enlargement of the liver and breathlessness, and hyperalgesia effecting the skin over the heart and muscles of the left chest and axillary fold, and it is also said the left sterno-mastoid and trapezius muscles.

Increased size is made out by means of auscultatory percussion. The direction of the increase in size indicates in a measure which chamber is affected, but this has to be verified by the other symptoms before one makes his diagnosis. We may have considerable dilatation without a murmur or we may have little dilatation with systolic murmurs at apex and base and regurgitant waves in the veins.

When the force of the heart fails to maintain the arterial pressure at the height necessary for the tissues, we get the symptoms in the remote organs and tissues, enlarged liver, dropsy, ascitis, etc.

Enlargement of the liver may not appear early, but having once appeared each subsequent attack is accompanied by this symptom, sometimes before any signs of dropsy.

When there is dropsy, there is less urine secreted, and on the disappearance of dropsy there is more. The cause of the urinary symptoms, diminution in quantity, etc., is in the main, due to venous stasis in the kidneys. One of the earliest symptoms of impending heart failure is the appearance of fine crepitations at the base of the lung.

### *Prognosis.*

If the heart responds well when digitalis is administered, the prognosis is quite favorable, even if there is great dilatation; on the contrary if the heart does not respond to treatment, even with slight dilatation, the prognosis is unfavorable, more particularly so in heart failure with dilatation in advanced arterio-sclerosis.

### *Treatment.*

This should be first preventative. Patients should be taught proper methods of living and when taken ill the heart should be examined carefully and sufficiently often to keep one acquainted with its exact conditions.

The patient should not be allowed to get up from a sickness too rapidly,—this cannot be too strongly urged, as, no matter how much you insist on care, the patients will forge ahead too fast for their own good. McKenzie says—"Dilatation is an indication for the prescription of digitalis in all rheumatic hearts, except in the acute febrile stage. In other conditions it should be tried, especially if there is dropsy and scant secretion of urine."

I find absolute rest for a period, in young persons—with a little heroin, strychnine and digi-

\* Read at the annual meeting of the Medical Society of the State of New York, January 25, 1910.

talis—one or all, or even none of them, to do beautifully. The absolute rest should be kept up according to the condition of the heart. When the heart gets back to its normal size, or nearly, the patient begins very, very gradually indeed, to get around and exercise. When there is dropsy, the old formula of squills, digitalis and calomel is often called into requisition for a time with great benefit. Elastic bandages often give relief to swollen legs. The abdominal or thoracic cavities sometimes need tapping. Deep pricks with needles on the legs and genitals are sometimes helpful, but must be done with great care as to cleanliness. Deep breathing, carefully regulated, is of great benefit in œdema of the lungs. It is well not to insist on too prolonged absolute rest in the case of patients well along in years.

#### *Case Histories.*

CASE I.—April 7, 1908, Mrs. J. B., age 58, married, has had three children, youngest 28. Father died at 68. Disease unknown. Mother died at 86 of pneumonia. One sister and one brother died of tuberculosis. Has had a severe case of typhoid fever with numerous complications from which she never entirely regained her strength. For one year has complained of pains through the chest. She appeared jaundiced. Had severe attacks of cardiac asthma. Examination shows dullness extending to right one inch beyond normal, a systolic murmur heard over pulmonary area, gallop rhythm, œdema at the base of the left lung. The liver was tender and there was severe pain on pressure in the epigastric region. She had twice been advised to be operated on for gall-stones. The treatment was rest, restricted diet, heroin, strychnine and digitalis. She still continues to use these drugs, with sometimes potassium citrate and sometimes a dose of calomel. Has recovered from "gall-stones," has no more attacks of cardiac asthma, she is fairly comfortable but has to refrain from doing any work.

CASE II.—May 25, 1909. Mr. J. B., age 68, married. Family history negative. Has had small-pox, sometimes troubled with diarrhœa and indigestion. Habits particularly good, but overworked. Had attack of angina pectoris on May 11, 1909. Since then has been taking medicine and is able to do nothing. Was told by his physician that he was near his end. Had attacks of cardiac asthma. Came to Rochester May 22d. Examination revealed dullness extending on both sides into the axilla. Apex beat way outside nipple line and diffuse, œdema at base of lungs—liver tender.

Systolic blood pressure—150.

Dyastolic blood pressure—125 to 130.

Urine scant—spgr. 1015. Albumin trace.

Pulse—88; very pale.

Treatment—Heroin, calomel, salts and restricted diet.

This treatment gave him rest. He felt better

and was cheerful, until three days later, when he was seized with an attack of angina and promptly died.

CASE III.—Mrs. J. S., age 52, married, two children. One sister died of heart disease and one brother of tuberculosis. Had typhoid fever when sixteen. Had rheumatism when seventeen. Had a miscarriage ten years ago and was almost exsanguinated. Had la grippe six weeks ago. I called to see her at four o'clock in the morning, May 1, 1909. She had some dyspnoea. Examination shows hyperæmia of the skin and dullness extended to right of sternum  $4\frac{1}{2}$  inches. Liver tender. Fine crackling rales at base of left lung. Epigastric pulsation, sound of the heart normal except an occasional extra systole. Pulse, 120; temperature, normal; blood pressure, 135 systolic; 120 dyastolic.

The next day she had a true gallop rhythm, the heart was slow. In the next few days, under rest in bed, not too closely insisted upon—restricted diet, calomel, salts, heroin, strychnine and digitalis, the gallop rhythm disappeared, as did the arrhythmia and hyperæmia. The rapid pulse continued but the dullness became practically normal. The œdema of the lung disappeared, as did also the liver tenderness. In this case the elimination and heroin seemed to do the most for the patient, but the heroin had to be discontinued on account of constipation after a time.

CASE IV.—Miss J. M., age 40, single, one sister died with an eclamptic seizure. Had typhoid fever when 10 years old; has always worked hard. Has had some indigestion. I was called to see her on the afternoon of January 9, 1909. She had been working very hard with a foot-power machine, sewing fur coats. She was in a semi-reclining position, breathing rapidly and with difficulty, skin dusky, hyperæmic. Pulse, 140; temperature, normal. Right dullness extended four finger breadths beyond the sternum. There was a systolic murmur heard best in the tricuspid area which was transmitted into the neck. There was venus pulse in the veins of the neck. The patient was put to bed, was given an initial dose of calomel followed by epsom salts, heroin and strychnine. The next day the pulse was 100 and respiration quite easy. The right heart gradually retracted and in about four weeks the murmur was absent, except on exertion and the dullness to the right was only slightly increased.

CASE V.—M. D., female, age 19, basket-worker, single, family history, negative. Has had bronchitis and some glands have been removed from her neck. December last had a cold and was in bed for three days, did not have physician. She got up and went out before she was well. Complained of dizziness, but danced and skated. On February 15, 1909, I was called to see her because they said she had fainted. I found her in bed with a temperature of 98 3-5 degrees. Pulse, 68. Pulsation was present in the jugular

veins, on right side particularly. Percussion showed dullness extending to right of sternum, three finger breadths. Auscultation revealed systolic murmurs over tricuspid area which were transmitted into the neck. Treatment was elimination, rest, light diet and strychnine.

February 16th percussion findings same as on the 15th, murmur heard only faintly in the tricuspid area, but distinctly in the neck over jugular veins on the right side. In six weeks there was retraction and good recovery.

CASE VI.—J. B., male, age 60, married, saloon keeper. I was called in twice to see this man in emergencies, but was not his regular physician, hence have no history.

The first time, November 16, 1909, he was suffering from an attack of angina pectoris which was relieved by an injection of morphine, gr.  $\frac{1}{4}$ . Auscultatory percussion at that time did not reveal any marked enlargement of the heart, but four days later he had another attack; this time the pains were severe and the heart was very much dilated, the apex impulse being considerably outside the nipple line.

He had a marked pulsus alterans which was as distinct to the finger as though you saw it on paper; this pulse continued and although the morphine somewhat relieved the pain, the heart-beats became more and more feeble, and he died within a few minutes.

I believe with McKenzie that the pulsus alterans was the result of an extremely exhausted heart muscle attendant upon the dilatation and the extreme pain was consequent to the actual rending of the heart muscle.

Billings and Salisbury say that this is a very rare condition.

Wenkebach states that he has seen but two cases.

#### DISCUSSION ON THE PAPERS OF DRs. ABRAHAMS AND MULLIGAN.

DR. ALLEN A. JONES, Buffalo, New York: Mr. President and members of the society: These two admirable papers present so many important topics for discussion that if each topic was considered at length it would consume more time than is allotted to me.

In Dr. Abrahams' paper he referred to anemia as being an important factor in the estimation of the prognosis as determining or forecasting the prognosis in valvular disease of the heart and that is particularly important in advanced years. When we find cases of atheroma of the aorta and aortic insufficiency, possibly a double murmur at the aortic valve, systolic as well as diastolic, with vascular disease, and a dilated and hypertrophied left ventricle, or possibly the whole heart associated with a severe grade of anemia, the prognosis is rendered much more serious than is the case with the anemia that so frequently attends valvular disease in younger people.

I recall a young woman who came to see me some years ago—I think about seven years ago—with mitral disease, with a severe chlorotic anemia, dilated heart, leaking badly at the mitral valve. The heart was very irregular; the girl was weak and tremulous, but in good flesh, and under rest and iron and appropriate treatment otherwise she improved greatly. In later years she came to me with typical symptoms of Graves disease. She had the tripod—the enlarged thyroid, somewhat prominent eyes, not markedly so, and the tachycardia. At that time her heart was somewhat enlarged. A mitral murmur was heard. She was anemic again, and that was about two years ago. Recently she returned, having lost all her symptoms of exophthalmic goiter, and presenting a heart that is astonishingly good. The left border was slightly outside of the nipple line; a mitral murmur was to be heard only very moderately, her pulse was normal in frequency and quite regular and she was complaining of symptoms entirely remote and different from those she had formerly complained of. Anemia in this case then was not a bad prognostic omen.

I think Dr. Abrahams is wise in considering conditions of the myocardium as being all important in forecasting the prognosis. The kind of valve disease is extremely important here too. We all know that mitral insufficiency, as Dr. Abrahams has said, may be carried for a long time without any serious results apparently. I think we must consider not only the dilated heart muscle but hypertrophy and ability of that muscle to maintain or retain its power of stretching. Under normal conditions the heart muscle is called upon to stretch very frequently far beyond the ordinary demand of stretching that is made upon it and as soon as that ability to compensate itself to the increased intraventricular capacity is interfered with by myocardial changes, myocarditis or degenerative changes, the heart is never again as good, and that may be the initiation of what finally develops into serious cardiac insufficiency. The arterial condition is all important as we so readily recognize.

I was very much interested in Dr. Abrahams' report of the remarkable cases of old people as compared with those apparently extremely young, emphasizing the importance of the arterial condition regarding the cardiac condition.

I wish to speak one moment of Dr. Mulligan's paper. I think that nervous strain long continued or frequently repeated is as important a cause of dilatation of the heart as is physical strain, and Dr. Mulligan did well to emphasize that point. While we do not know much about the cardiac innervation, we do know clinically that these factors which give rise to long continued nervous irritation and arterio-capillary spasms lead to serious results with a crippled heart.

## DISCUSSION ON JOINT PAPER BY H. E. SMITH AND L. A. VAN WAGNER ON SPLENO-MEDULLARY LEUKEMIA.\*

DR. ALEXANDER LAMBERT, New York City: I have been much interested in the joint paper of Drs. Smith and Van Wagner on this subject with reference to the treatment of leukemia by the Roentgen rays. I have watched a number of these patients, but the results have been different from those reported by Dr. Smith. Some of them do apparently become cured; others apparently are much improved, and some unimproved, but those that are improved, so far as I have seen, speedily fall back. Those that are apparently cured will speedily, without any apparent reason, become worse, and in my experience they do not remain alive very long. They all die. One may relieve them of their symptoms of leukemia apparently, yet for some unknown reason they die speedily. As to the statistics quoted by Dr. Smith he does not say that they concern patients who have been watched long who have remained cured. I shall be much interested at the end of a year or more to hear from Dr. Smith as to the condition of his patient that has apparently been cured. In my experience they remain cured but a short time, and that the condition soon recurs and the patient dies.

DR. L. H. NEUMAN, Albany: I think we are to be congratulated upon having this paper presented to us on such an interesting subject. As the doctor has said, and Dr. Lambert repeats, it will take time to demonstrate many of the points brought out. My experience with the use of the Roentgen ray in this condition is that you can bring about for some reason, I do not believe is thoroughly understood, a decrease in the number of cells, so that in the case I have now in mind, a hospital case, there were over 500,000 white cells which, under the use of Roentgen therapy, were gradually decreased in the number of leucocytes until the leucocytes came down to within nearly normal, namely, 8,500, which is practically a normal count. I was congratulating myself upon the success of the treatment when, without any assignable cause, that we could find, the patient suddenly died. It seems to me that this leucocytosis that we have in leukemia is a conservative process; that there are produced certain toxins as the result of the disease, and that these toxins bring about an increase in the leucocytes; that measures which simply reduce the number of leucocytes do not in themselves act in a curative way and that we must look further than purely the question of the leucocytosis to account for the symptom-complex which we call leukemia.

DR. HENRY L. ELSNER, Syracuse: I have been very much interested in this paper presented by Dr. Smith. He has stated many facts with re-

gard to the technic which I think it will be wise for us to remember. But as the result of a fair experience I am forced to the conclusion that even with X-ray therapy we are not going to cure these cases of leukemia. Last year, or the year before, Dr. Schuyler reported before this society a case I saw with him in Utica of marked leukemia of the spleno-myelogenous type. The results with the X-ray were so surprising that I insisted upon him reporting the case at the end of a number of months of treatment, and the change was so prompt that we were encouraged to believe that this young girl would make a permanent recovery. But the case ended just as those cases which have been mentioned by Drs. Lambert and Neuman. This girl within the past two months developed acute symptoms and died. Of the cases of leukemia of the lymphatic and spleno-myelogenous type I can recall five which were supposed to have been cured by X-ray therapy. These were cases in which the remedy acted promptly despite an enormous lymphocytosis, but not a single one of those cases is alive today. While I do not believe that such results should lead us to discontinue this treatment, because so far as I can see it is the only remedy which we have which in any way influences the presence of this excess of lymphocytes, yet we must remember that we should not hastily conclude that the X-ray therapy is going to cure our patients permanently. If we do that we make a very great mistake.

DR. ALLEN A. JONES, Buffalo: If these cases of leukemia are studied carefully it will be found that the leucocytes will rise and fall while the patient is not under any special plan of treatment. This rise may go as high as hundreds of thousands and fall to as low as eight or ten thousand.

DR. CHARLES O. BOSWELL, Rochester: I have seen cases of spleno-myelogenous leukemia where we got the same results from the use of Fowler solution. While working with Dr. Simon in Baltimore on one case the myelocytes disappeared from the blood under Fowler solution, and the number of leucocytes had been greatly reduced, but that patient ultimately died. Another thing I want to say is that I have seen a case of leukemia die of terminal erysipelas.

DR. ARTHUR HOLDING, Albany: I wish to thank Dr. Smith for bringing this important subject to our attention and consideration. I have had a little experience in this line so that I would like to add to his statistics. I have seen in consultation eight cases of leukemia of the spleno-myelogenous variety, and two of pseudo-leukemia. I have not treated any cases of lymphatic leukemia. Both patients with pseudo-leukemia died. Of the other cases one failed to improve, and one got symptomatically well. Of the cases of spleno-myelogenous leukemia one was too far advanced to accomplish any results; two were symptomatically well and subsequently died. Two became symptomatically well and have

\* Received too late for publication in February JOURNAL with the paper.



passed from under observation, and the rest have improved and are under observation at the present time. I think it has been proved that the leucocytes change very remarkably under the Roentgen ray treatment. I have brought with me several charts, some of which I will pass around. These charts are worth looking at.

The technic advocated is the technic which was brought out largely through the activity of Pancoast and Stengel, and they insist that the spleen shall be avoided and the long bones shall be treated with the X-ray.

I have in my hand a chart of a case brought to the office on a stretcher, expected to live but a short time. You can see a fall in the leucocytes of from 250,000 gradually to the normal limit. This patient was under treatment for a considerable time, lived three years and then died. I would like to present that in relation to the statement that these patients speedily die. Three years is quite a little time. When you take a patient that is bedridden and give him three years of life, so that he can walk around the street and attend to light duties in the house I think the treatment is worth while. This patient was treated for the spleen, contrary to the technic advocated of late, based on pathology. The patient made a very good recovery and then the case was taken to sea. One of these gentlemen has advocated a treatment according to the pathology, and he said that we should keep away from the spleen and treat the long bones. His advice was followed. The leucocytes came up; the patient became discouraged and sought other medical assistance. She became speedily worse and returned to me in the same condition. I found her with a leucocyte count very much higher and the chart shows 360,000. We started treating her over the spleen and had a recession of the symptoms going down to the normal for a period of months, and then the patient died. This patient was in such a weak condition that she was unable to sit up and was brought to the office on a stretcher, and by means of this treatment given three years of comfortable life except for this one period, when she received another system of treatment. There is no question that this agent will take bedridden patients and put them on their feet and make them comfortable for six months, and in one case for three years, and when it will do that it is certainly worthy of trial. How are we going to prolong this result or get at the truth which will enable us to give them a more permanent result? Until the technic is going to change I do not believe the matter of treatment is going to lose vogue right away. These patients are treated under a new form of technic which is different from the one set forth. Dr. Cole of New York City is responsible for it. He had a case which failed to respond to the former method and inasmuch as it was one of extreme gravity he had to do something. He treated the case with a large number of amperes

of current, such as he would use in radiographing a stone in the kidney. He used from 30 to 35 amperes and used six tubes in each treatment. The only thing which justified this was the bad condition of the patient.

DR. SMITH (closing the discussion): I am very glad that this paper has elicited such a free discussion. That is one of the excuses for reading it. It is a strong temptation to present successes, and to say nothing whatever about failures. In these cases it has been stated here that they all die sooner or later. They do with the exception of a few spontaneous cures from arsenic or no arsenic. Under the administration of arsenic you have a disappearance of the myelocytes which will occasionally occur without any drug treatment. A small percentage—say 1 per cent.—will recover spontaneously without any treatment. If we can reduce the condition of the blood to absolute normality, with proper chemical reaction, is it not reasonable to assume we can keep on doing so? The trouble is that these cases go to the Roentgenologists in an advanced state when practically all treatment is useless. In cases of advanced medullary leukemia you can give them six months or one or two years of life with more or less comfort. As Dr. Holding says, I am convinced that this disease is a twin-sister of malignancy. X-radiation will cure a percentage of the deep-seated ones—small it is true—and a large percentage of the superficial ones. If this disease is one of malignancy it is reasonable to assume that if we cannot eliminate that malignancy the fault lies in our technic. I know that it is faulty and our results are still uncertain, but I believe the time will come when we will treat our patients with a degree of certainty that a percentage of them will be cured. We will cure a small percentage where the disease now is almost universally fatal.

I am gratified with the criticisms the paper has brought out. We want criticisms. We do not want to claim a panacea for X-radiation, but I hope this paper will bring us in closer touch with the truth.

## THE SIGNIFICANCE AND VALUE OF THE CAMMIDGE TEST IN RELATION TO PANCREATIC DISEASE.\*

By S. R. BLATTEIS, M.D.

NEW YORK.

**I** APPROACH the subject assigned to me this evening with a deep feeling of compassion for the general practitioner of medicine who is oft-times compelled to listen to papers more or less technical and for the comprehension of which a greater or less degree of technical training is necessary. And while *prima facie*,

\* Read at the Third Annual Meeting of the Second District Branch of the Medical Society of the State of New York, November 6, 1909.

these newer methods of diagnosis tend toward confusion and bewilderment, their real purpose and ultimate result is to simplify and aid in the diagnosis of disease. Few organs in the human body have presented greater difficulty in diagnosis than the pancreas. Any means therefore enabling us to render a more positive opinion in these cases should be received with open arms.

It had long been known that acute and gangrenous pancreatitis and often chronic inflammatory changes of this gland were associated with fat necrosis. Cammidge and Robson from their investigations concluded that the product of this necrosis was absorbed, and produced such changes in the chemical composition of the blood which they at first thought might be due to glycerine. They attempted to find this substance in the blood, but on account of its small quantity in per volume of blood and the large quantity of blood required, the method was found impracticable. Then recognizing the selective powers of the kidneys, Cammidge turned his attention to the urine with the idea that the soluble products of pancreatic fat necrosis might be detected there.

The first attempt to isolate a specific substance in the urine resulted in the "A" reaction, and shortly afterward this was changed to what was called the "B" reaction; but the method now usually employed is the so-called "improved method" or "C" reaction. For the complicated chemical technic of this I refer to Robson and Cammidge's book, "The Pancreas; Its Surgery and Pathology."

These authors investigated the nature of the phenylhydrazine precipitate and found that it gave the reaction of a sugar allied to the pentose group; but owing to the fact that careful examination of the untreated urine gave no pentose reaction, they suggested the possibility that this substance was derived from some antecedent product in the urine by hydrolysis with hydrochloric acid.

It becomes important therefore to dwell briefly upon the nature of a pentose. It has been customary to consider all urines that gave a distinct and unquestionable reduction test for sugar as containing grape sugar ( $C_6 H_{12} O_6$ ); this view is now no longer tenable. There are found in the human urine a variety of sugars which react to the recognized sugar tests, such as Trommers, Nylander's, Fehling's and phenylhydrazine. For example: There is milk sugar which appears in the puerperal period in a woman who has an abundant secretion of milk yet does not nurse her child; but the differentiation between this and grape sugar is simple: grape sugar ferments with yeast, milk sugar does not. Then Robinson and Lepine have lately described cases of levuluria which is recognized by the levorotatory power developed during the fermentation test of the urine. Very rarely does maltose appear; but of greater importance and frequency is the pres-

ence of pentose ( $C_5 H_{10} O_5$ ). Pentose yields all the sugar reactions, but is to be distinguished from other sugars by the orcin or phloroglucin test, that it is nonfermentative, and optically inactive though occasionally the polariscope will show a dextro-rotary pentose in the urine.

The end result of a positive reaction consists of a light yellow flocculent precipitate appearing either in a few hours or after standing overnight; this precipitate when seen under microscope consists of long light yellow flexible hair-like crystals arranged in delicate sheaves, which when irrigated with 33 per cent. of sulphuric acid melt away and disappear in from 10 to 15 seconds.

It is indeed no simple matter to distinguish under the microscope by structure alone between the crystals of phenyl-glucosazone and phenyl-pentosazone; but aid is rendered by the fact that the latter are more readily soluble, especially with a 33 per cent. of sulphuric acid and has a melting point of from 156 degrees C. to 160 degrees C. Whether the crystals of a positive reaction vary sufficiently in shape, size and melting point to indicate the type of pancreatic disease, Cammidge states that these "Were not sufficiently distinctive to be entirely relied upon for purposes of diagnosis."

In 250 consecutive examinations Cammidge met with the following results: All cases of acute and chronic pancreatic disease, numbering 67 in all, the latter with or without obstruction of the common duct, gave a positive reaction. In 16 cases of cancer of the pancreas, four were positive and 12 negative; and in 21 cases of gall stones not associated with pancreatitis all proved negative. Of 96 miscellaneous diseases four were positive and 92 negative. The examination of 50 normal urines gave uniformly negative results.

In my opinion the strongest claim Cammidge possesses for considering his test in the light of a specific lies in the fact that he has been able to control the findings of the pancreatic reaction in 24 cases by histological examination of the pancreas; this certainly is the crucial test. In 15 cases which gave a positive reaction, histologic examination of the organ showed constantly the presence of a greater or less degree of interstitial inflammatory changes. Nine cases which gave a negative reaction showed no lesion whatever.

I herewith briefly summarize the results obtained in a series of 34 cases examined in the laboratory of the Jewish Hospital: six of the cases gave positive reactions and had been diagnosed as follows:

<i>Positive.</i>	
Chronic pancreatitis .....	2
Cholecystitis .....	1
Cholelithiasis .....	1
Acute pancreatitis and cervical adenitis.....	1
Gastro-duodenitis .....	1

*Negative.*

Chronic pancreatitis .....	2
Cholecystitis .....	5
Cholelithiasis .....	2
Duodenal ulcer .....	1
Appendicitis .....	1
Alcoholic gastritis and hypertrophic cirrhosis of the liver.....	1
Gastritis .....	2
Gastric ulcer .....	1
Neoplasm of the stomach.....	1
Tumor of the liver.....	1
Endothelioma of the pleura.....	1
Migrane .....	1
Miscellaneous .....	9
	—
	28

Only to one of these positive cases do I wish to call your attention: R. R., female, age 17 months, was admitted to the Jewish Hospital on February 2d of this year. Two weeks before admission the mother had noticed a swelling about the angle of the jaw which became larger; the child became very sick, restless, had difficulty in breathing, and on admission these symptoms increased, and in addition cyanosis developed, also vomiting and severe pain and tenderness in the region just below the epigastrium associated with marked tympanities. Every possible examination was made in an effort to arrive at a definite diagnosis. Some of the enlarged glands were removed and showed simply a hyperplasia of lymphoid tissue with areas of necrosis. The only definite finding was a positive Cammidge test; the child died March 28th; no consent for autopsy was obtained.

I mention this case because it corresponds very closely to one published by Edgecombe,<sup>1</sup> of London, where in a case of mumps owing to abdominal pain and tenderness and vomiting the urine was examined for the pancreatic reaction under the direction of Cammidge himself who diagnosed an active inflammation of the pancreas based on a positive reaction. The similarity of these two cases is striking.

The percentage of positive cases in this series, namely, 17 per cent., is about the result obtained by E. H. Goodman,<sup>2</sup> who reports a series of 62 cases with 10 positive reactions a percentage of about 16, and with the result obtained by Schroeder,<sup>3</sup> of Cincinnati, who in 85 cases found 11 positive findings, a percentage of about 13.

Now as to the question: Is a positive pancreatic reaction as described by Cammidge pathognomonic of pancreatic disease? If not, what interpretation can we put on a positive finding?

There seems to be no reason why the end products of fat necrosis of the pancreas should be substances that are to be considered specific even though we admit the relatively large proportion of pentose yielding material in the pancreas, 2.48

per cent. F. Blumenthal,<sup>4</sup> of Berlin, maintains that all animal nucleins contain a carbohydrate belonging to the pentose group, and that the pentose group is characteristic of nucleins. Since pentose is present in the nucleic acid of the thymus and other organs, according to the more recent investigations of Neuman, it is but logical to conclude that pentose will be found in the urine in other conditions than diseases of the pancreas; and clinical experience confirms this view. For Watson<sup>5</sup> in a large number of examinations has obtained positive reactions in such diseases as pregnancy, uræmia, gout, leukæmia and nephritis, etc. Cammidge himself reports four positive findings in diseases classed as miscellaneous. It must not be forgotten that a diet containing a large amount of pentose will cause the appearance in the urine of small quantities of this substance and yield a positive reaction.

Cammidge states that in 22 of his cases which before operation had given a well marked reaction were re-examined one to two weeks after cholecystenterostomy had been performed for the relief of pancreatitis and that no reaction could then be obtained. It is difficult to reconcile this statement with the theory on which the reaction is founded. If the substance resulting from pancreatic disease is present in the blood and therefore in the urine and detected as already described, the removal of the cause producing the lesion in the pancreas should not influence the reaction, because the changes, whether fat necrosis or parenchymatous degeneration or interstitial changes, that had already taken place in the organ must have become organic, and these changes are permanent; the removal of the cause, such as stone in the common duct, does not remove the changes already produced in the pancreas; and if in removing the cause, as by operation, a positive reaction becomes negative, then the reaction is not pathognomonic of pancreatic disease, for there is left behind a pancreas diseased to a greater or less degree. Rather may the reaction be explained as a functional disturbance of the gland coincident with the existence of causative factors, and upon the removal of the causative factors the reaction is changed.

Furthermore, Schumm and Hegler,<sup>6</sup> in the *Münchener Med. Wochen.*, as late as October 5, 1909, make the statement that many positive Cammidge tests are nothing more than tests for glucose, and carefully made analyses have convinced them that the obtaining of a positive reaction is more or less an accident; that the variability of the findings seems to depend upon the inherent properties of the tribasic lead acetate used in the process to form these crystals with the carbohydrate with which it comes in contact.

Cammidge and Robson's<sup>7</sup> conclusion is as follows: While we maintain that a positive reaction by the improved method of performing the so-called pancreatic reaction is strongly suggestive of inflammatory disease of the pancreas, we are

not prepared to contend that it is pathognomonic of pancreatitis.

J. H. Musser,<sup>8</sup> of Philadelphia, states: One must consider it only an aid, a suggestive but certainly not a pathognomonic sign of pancreatic disease.

Such is the status of this question, and only a larger experience and more extensive clinical observation, both in diseases of the pancreas and other diseases will finally determine the value of the "pancreatic reaction."

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### THE NEED OF SPECIAL SCHOOLS FOR CRIPPLED CHILDREN.\*

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THE object of this paper is to call attention to the movement on foot to have special schools established throughout the country for the training of cripples who are mentally proficient. Not only schools for ordinary school education, but institutions for the industrial training of this large class of unfortunates. The chief object is to make them self-supporting, or partially so, that they are not a burden in their families or in the community. The first institution for the schooling and technical training of cripples was established at Munich in 1832. England followed suit in 1851, and Sweden in 1890. At present in Germany there is a strong movement to provide quarters for these cases. A census found that there were 80,000 cripples among the school children and accommodations for only 3,000. Forty thousand were in need of institutional treatment. Eleven new homes have been added in the past year to the 32 already in existence.

In the United States no census has been taken but efforts are being made to have this done. Comparing our population with that of Germany, we may roughly estimate a total of 120,000 cripples among the school children. We have accommodations for less than 2,000. The first day school was the Industrial School for Crippled and Deformed Children in Boston in 1894. In New York City there are now eight day schools and in Brooklyn the House of St. Giles the Cripple, a combined hospital and school.

There are three objects in view, which may be taken singly or in combination. The first is the

orthopedic treatment such as is given in orthopedic hospitals or the children's wards of general hospitals. The second is the common school education. The third and most important for the community is the special industrial training which makes the cases partially or wholly self-supporting. Both boys and girls are trained to do what their infirmity allows them—from caning chairs to gardening. Without industrial training the children accomplish nothing and are a financial burden. The Charity Organization finds its hardest task in getting work for cripples, whereas for deaf-mutes it is easy.

The Widener Institution of Philadelphia is most interesting. Ten years ago Mr. Widener spent one million on the lands and buildings, then endowed the place with three million. Permanent cripples that are not mentally defective are allowed to enter and are bound over by their parents until the age of twenty-one. Their physical condition is looked after throughout. Their school education is the same as in the grades in Philadelphia. As soon as they are old enough, manual training is begun, and they are paid for such part of their work as is in excess of the cost of materials. The children save their money and are paid compound interest.

In the last number of the *American Journal of Orthopedic Surgery*, Dr. Gillette states the following: "After fifteen years of observation and knowing all the facts, it is quite difficult for one to refrain from making a simple and impassioned argument setting forth the necessity of State care of the crippled and deformed. When one reads the various letters of inquiry and application to the Minnesota State Hospital for Crippled and Deformed Children, or the eloquent and pathetic pleadings from doctors and parents for admission to this hospital of children suffering from tuberculous diseases of the joints, one cannot but wonder what becomes of those children living in States or cities where no institution whatever exists for their care and treatment; yet there are in the United States to-day forty-seven States and Territories that have no provisions for this class of unfortunates. In fact, it is the only class which seems to be almost forgotten by the government, and yet of all the wards of the State there is not one class for which so much good can be accomplished; achieving not only relief of suffering and protection of the well, but actually a financial investment for the State or government."

In Buffalo, the Crippled Children's Guild has had its summer home on the lake shore open for the past season. It expects to start a day industrial school this fall, transporting the children by stage to and from their homes. The same general plan of teaching will be adopted as elsewhere. Let us hope that it will grow and that the success of this school will lead to the establishment of a home school and to the founding of a second State hospital in the western part of the State.

\* Read before the Eighth District Branch, September 8, 1909.

There has just been started here a special class for the training of children who are mentally deficient. This effort will complement the other and the example in Buffalo should have its effect elsewhere, just as Buffalo is imitating the work in other cities.

## THE PATHOLOGY AND TREATMENT OF SKIN TUMORS.\*

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THE modern conception of surgical pathology is that a knowledge of the naked-eye appearance of abnormal tissue is absolutely essential to the proper treatment of surgical diseases, especially tumors. While the study of material removed at operation is exceedingly interesting, from a practical standpoint it is highly important that the surgeon himself should be able to recognize with the naked eye and during the operation any pathological change which may be present. This is especially true of tumors of the skin and mucous membranes where extensive operations may be mutilating in character and where, on the other hand, too little tissue is often removed; a procedure almost certain to be followed by local or regional recurrence if the growth be malignant, and this is the point which the surgeon must be able to decide at the time of the operation.

In the last three years I have examined about fifty specimens of tumors of the skin and mucous membranes removed at operation in St. Luke's Hospital, Utica. In arranging those of epithelial origin I have adopted the classification proposed by Bloodgood as being most descriptive and inclusive. Bloodgood arranges epithelial tumors according to their origin from the three types of cell constituting the epithelial covering of the body, namely, the basal cell, cuboidal cell, and squamous cell. Each type of cell gives rise to a distinct kind of tumor with characteristic clinical history and a definite pathological appearance. The tumors of each type may also be subdivided according to their origin from surface or glandular epithelium giving us the epitheliomas and the adenomas, and according to the arrangement of the cells with relation to the stroma giving us the benign and malignant epitheliomas and carcinomas of epidermal epithelial origin; and adenomas and the adenocarcinomas of glandular epithelial origin.

This distinction is one not only of purely pathological interest but of extreme practical importance, as the surgeon who can recognize the various degrees of malignancy will be able to regulate the extent of his operative procedure accordingly. For purposes of discussion I shall take up the epidermal epithelial tumors in this order: Epithelioma, the benign tumor, practi-

cally always appears as a papillary wart. Malignant epithelioma, in which the relation of cell arrangement to stroma reveals the benign prototype, carcinoma, in which this arrangement is lost.

The ordinary benign epidermal tumor is the mixed papillary wart with a history of duration of varying extent, without ulceration, induration at the base or evidences of glandular involvement. On removal there is no tendency to recur. The appearance of ulceration or induration or rapid growth is an evidence of a malignant change and it should be promptly excised. Histologically the picture is one of hypertrophy of all the elements of the epidermis, including papillæ, stroma, and epithelium (Fig 1). This being a benign condition local excision is sufficient to effect a cure.

The benign tumor composed chiefly of squamous cell is found in the disease known as verruca senilis and appears as an elevated patch, brownish in color, and histologically composed of hornified epithelium. Epithelioma basocellulare or the benign basal cell tumor is rare, appears as a small subcutaneous nodule, slow of growth and without ulceration. Histologically it is composed of basal cells covered with normal epithelium.

The malignant epitheliomas also present the varying characteristics of tumors originating from the different cell types, the least malignant being the basal cell malignant epithelioma, and the most malignant, the spinal cell epithelioma malignum. The importance of the recognition of these tumors cannot be overestimated, because by local wide excision alone, a cure can be expected; whereas, if the true nature of the growth is not suspected, amputation or a more extensive mutilating operation with extirpation of the glands may be done, thereby greatly increasing the danger to the patient. Metastasis in this type of epithelioma occurs very late and is not to be expected until the growth is very extensive and local infiltration quite marked.

The malignant epithelioma of basal cell origin is not a papillary growth but is the rodent ulcer or fungus growth appearing most frequently on the face. When fully developed it appears as an ulcer with elevated, indurated edges and necrotic base. Growth is not very rapid, the induration about the ulcer is slight and is due to inflammatory reaction. The skin containing the ulcer is usually freely moveable and there is no involvement of the neighboring glands except occasionally an adenitis due to infection from the open ulcer. To the naked eye on section the thick, indurated edge and base of the ulcer appears as a uniform white tissue. Histologically (Fig. 2) the growth is seen to consist of nests of cells identical with those occupying the basement membrane of the epidermis. Careful search by means of serial sections will reveal the downgrowth of basal cells from the epider-

\* Read before the Clinical Society of St. Luke's Hospital, Utica, N. Y., October 8, 1909.

mis covering the tumor, showing the unicentric or multicentric origin. Clinically this is a very benign growth and is cured by local excision, or if this would mean an extensive, mutilating operation, then exposure to the X-ray is justifiable and will usually cure the condition. We have examined six cases in our laboratory.

Malignant spinal cell epitheliomata are often malignant from their beginning although they may arise from a benign wart. They appear as papillary warts with narrow pedicles, no infiltration of the surrounding skin, and no glandular enlargement. Under the microscope we see the papillary arrangement, the supporting membrane sustaining many layers of prickle cells (Fig. 3). The recognition of this tumor is easy and important, as the necessity of a prolonged dissection is done away with because metastasis is very late in taking place. We have six cases, four from the lip and one each from the tongue and penis.

In considering the more malignant epithelial tumors, the carcinomata, we must remember that we are dealing with a growth much more deeply seated and more prone to give rise to early metastases to neighboring lymph glands and to the internal organs. Among the epidermal carcinomata, besides those arising from the three types of epithelial cells of the covering skin, we have to deal with the deeper growths arising from the epithelial elements of the three epidermal appendages, the hair follicles, the sweat glands, and the sebaceous glands. No specimens of these deeper seated tumors have come under my observation with two possible exceptions, which were both recurrent carcinomata and which I have been unable to place to my own satisfaction and so have not considered in this report.

Carcinoma basocellulare is the most benign of this group and appears either as a rodent ulcer or fungus growth. As an ulcer it is of long duration, superficial in character, but leading to extensive destruction of skin, rarely giving rise to internal or glandular metastases and yielding to X-ray treatment if on an inoperable surface. The fungus growth is elevated three to five cm. above the surface of the skin, rather slow in growth, base slightly indurated from inflammatory exudate. On microscopic examination the tumor is seen to be made up of an aimlessly growing mass of basal cells (Fig. 4). Local excision with a fairly wide zone of skin usually effects a cure. We have one case for study.

Carcinoma cubocellulare is a rare tumor composed of the intermediate layer of cuboidal cells. From the few observations in the literature, the malignancy of this tumor seems to be of a very high degree. I have observed one case corresponding to this type, a urethral carcinoma, which killed a few months after the first appearance. Carcinoma spinocellulare is the common

tumor of the lip, tongue, and penis. It is a very malignant type of tumor, giving rise to internal and glandular metastases at an early date, and so in its treatment the operation cannot be called complete unless the neighboring glands are removed. This distinction between the extent of operation called for in the treatment of the various types of tumors which I have briefly described points to the need of careful observation and thorough knowledge of the different pathological appearances. The carcinoma spinocellulare is of rapid growth, quickly ulcerates and shows early induration in the immediately surrounding skin. On section the diagnosis is easy in the fresh specimen from the characteristic white, granular appearance pushing into the surrounding tissues as cords of cancer cells. Histologically (Fig. 5) the growth is perfectly aimless, breaking through the basement membrane and invading the tissues in every direction. Pearl formation is very marked and the individual cells are almost exclusively of the squamous or prickle variety. From a careful study of carcinomata of this type and applying here the surgical principles now advocated for infiltrating carcinoma elsewhere, most surgeons recommend amputation, when the growth occurs on an extremity, with removal of the adjacent glands. Occurring on a mucous surface, wide excision and removal of glands should be the rule. We have studied eleven cases, seven from the lip and one each from the mucous membrane of the gum, cheek and tongue, and one from the skin of the lower eyelid.

In concluding the discussion of epithelial tumors of the skin and mucous membranes, I wish to mention one type of epithelial growth which I have not seen discussed in the literature nor in the text-books: I refer to the malignant change which takes place in a urethral carbuncle.

Since January, 1908, five specimens have been referred to me for diagnosis, all with the same history. A woman of about 50 years has an apparently simple urethral carbuncle removed, to be followed shortly by recurrence in the scar of a papillary ulcerating tumor of rapid growth and fairly broad, indurated base. Microscopically (Fig. 6), the picture is that of a malignant epithelioma with nests of columnar cells scattered through the branching which is covered by an invading growth of columnar and squamous epithelium. In all these papillary growths the best evidence of the degree of malignancy is the amount of induration at the base, and in all cases it is best to give the base a fairly wide margin in excision.

When we come to consider and classify the connective tissue tumors arising in the skin, we are confronted by a different problem. Whereas, we have been discussing tumors made up of one kind of tissue, now we must take into consideration all the tissues that go to make up the epidermis and which may all give rise to new

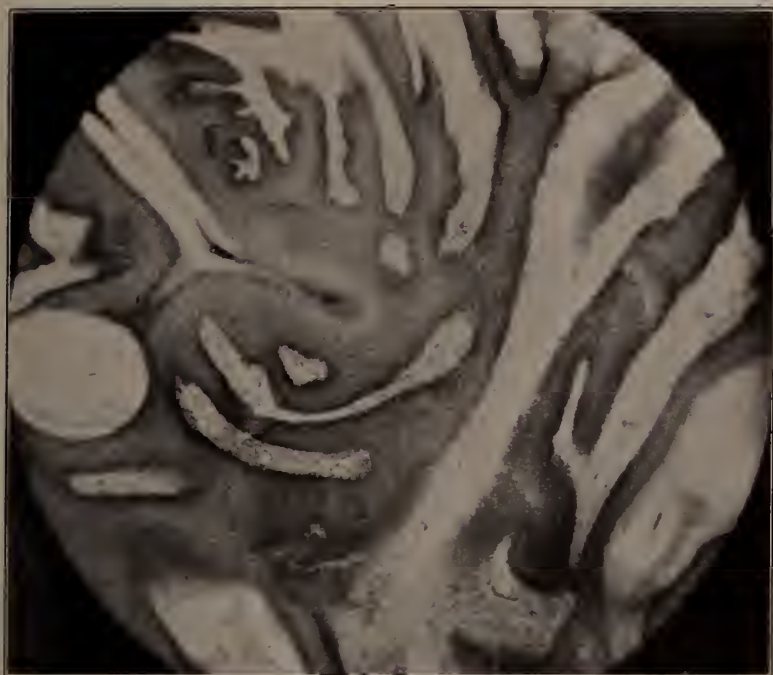


FIG. 1.—Mixed epithelial wart.



FIG. 2.—Epithelioma Basocellulare Malignum.





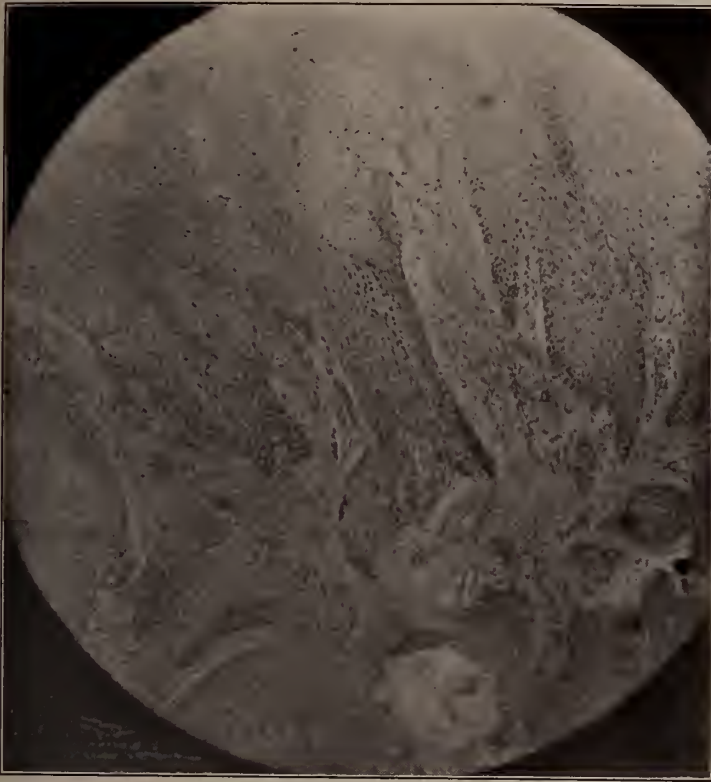


FIG. 3.—Epithelioma Spinocellulare Malignum.

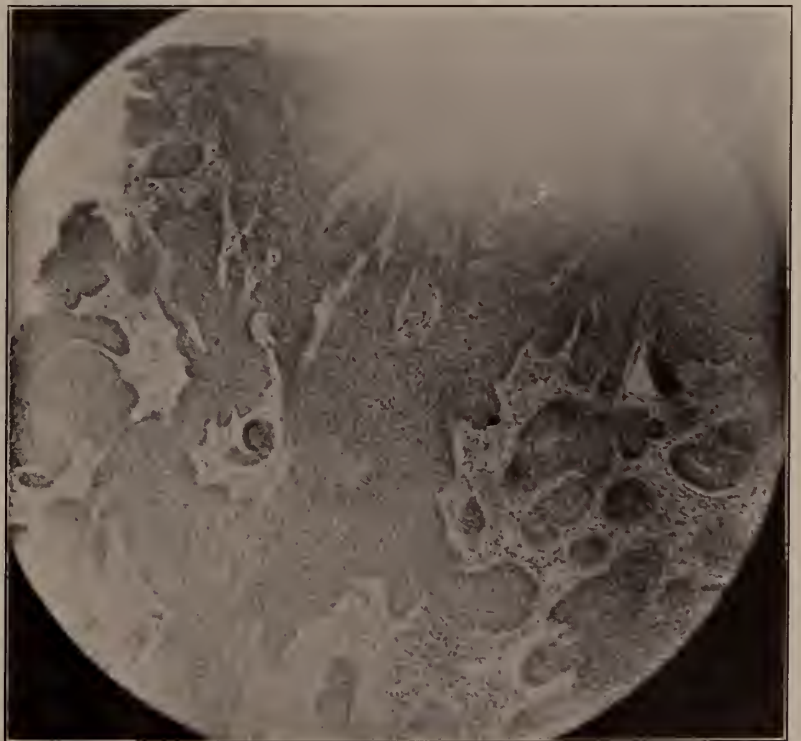


FIG. 4.—Carcinoma Basocellulare.



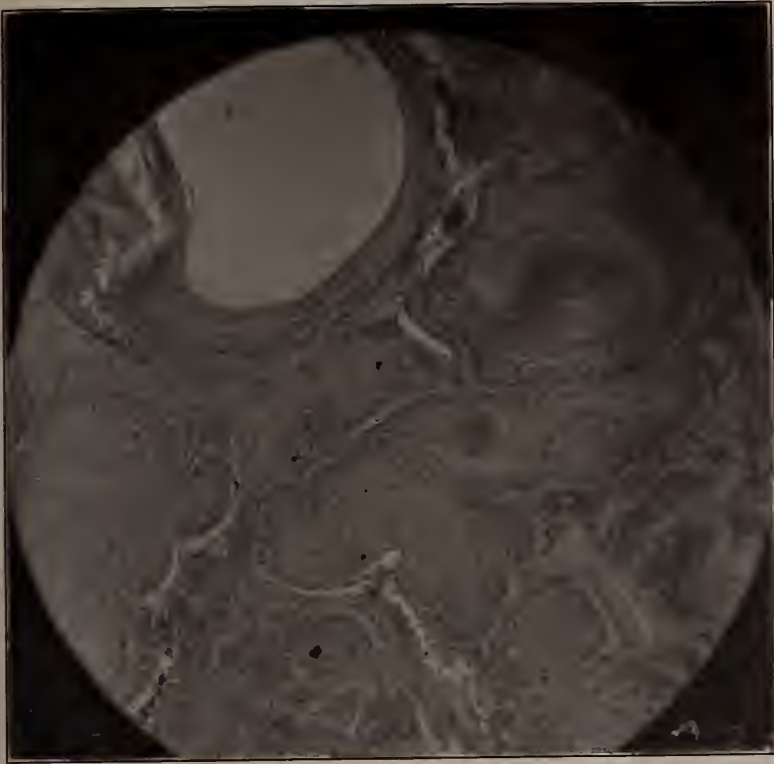


FIG. 5.—Carcinoma Spinocellulare.



FIG. 6.—Epithelioma Malignum Papillare Urethral Carbuncle.



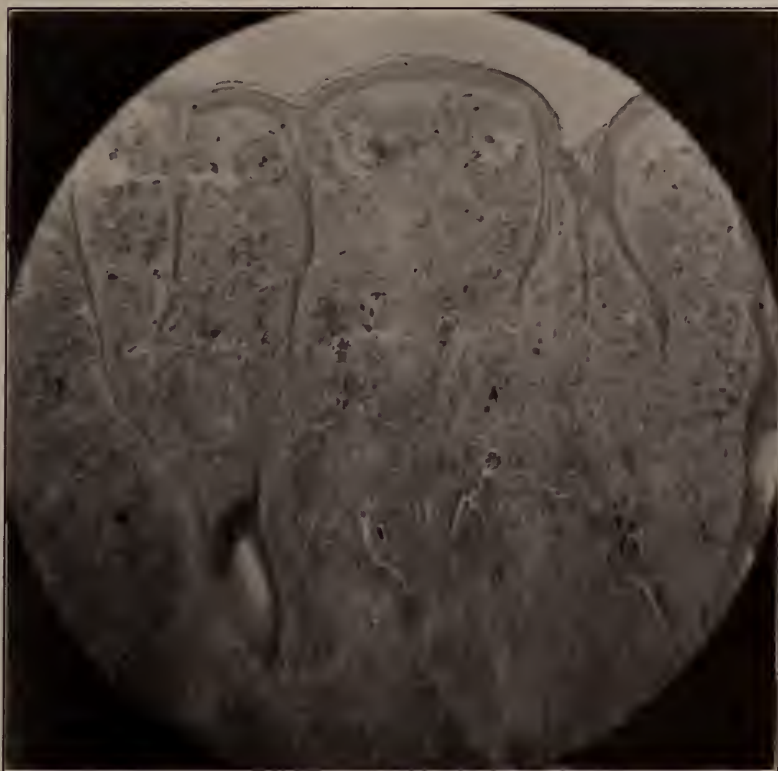


FIG. 7.—Congenital Pigmented Mole.



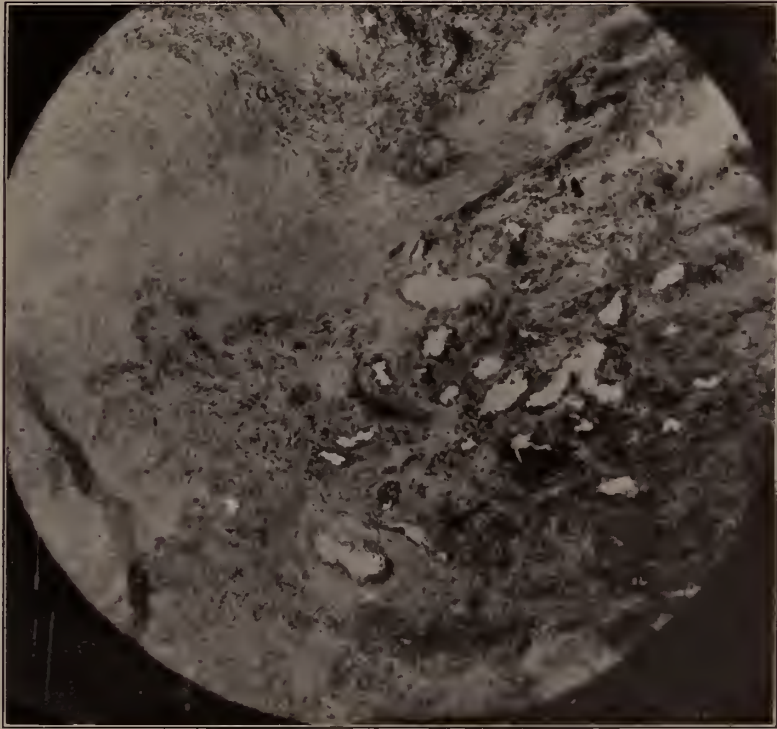


FIG. 8.—Fibro Angioma.





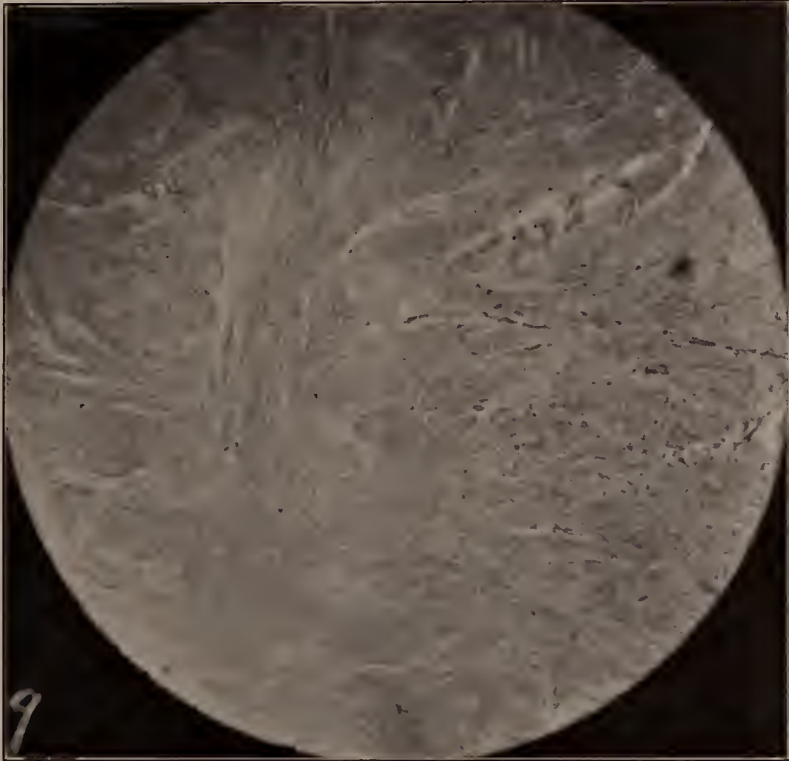


FIG. 9.—Fibro Spindle Cell Fibrosarcoma.





FIG. 10.—Myxoma.



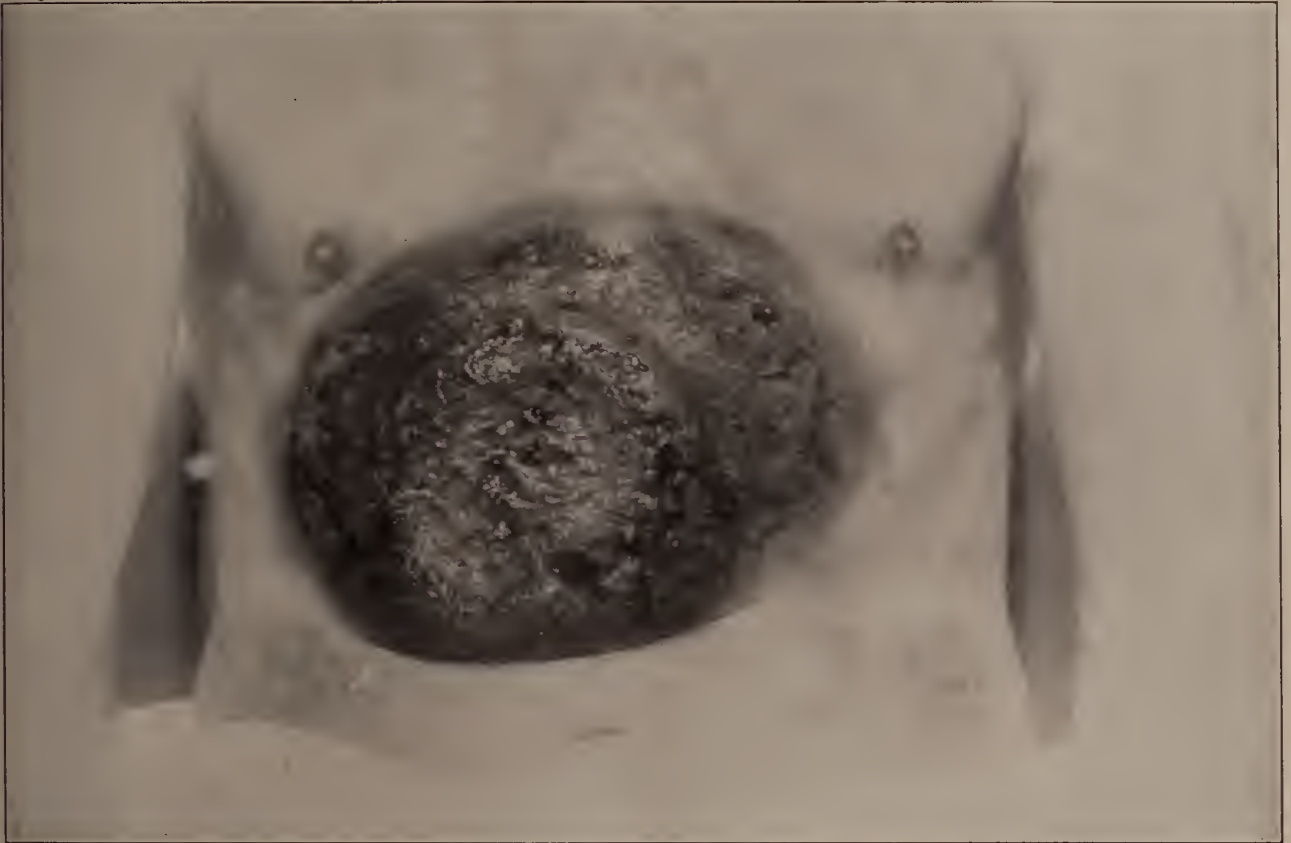


FIG. II.—Mycosis Fungoides.



growths. Thus, the benign connective tissue tumors of the skin are fibroma, myxoma, angioma and lipoma, besides the congenital pigmented mole which as yet has not been definitely placed pathologically. Some of the most eminent pathologists, among them Unna and Krompecker, maintain that it is an epithelial tumor arising from an early embryonic misplacement of basal cells, while others claim that it is of connective tissue origin as the cells have not the appearance or arrangement of an epithelial tumor, and, moreover, the malignant growth to which it gives rise, the pigmented alveolar sarcoma, fulfills more nearly the requirements of a sarcoma than of a carcinoma. We have six examples of congenital pigmented moles, all removed for cosmetic reasons with one exception, which was a mole removed incidentally at an operation undertaken for another purpose. Of the congenital moles, three types may be distinguished, the hairy mole, the warty mole and that with an elevated smooth surface. It is the latter type which is more prone to undergo a malignant change which usually occurs in individuals over 50 years of age. I have seen but one such case. An injured mole on the arm began to grow and was removed, to be followed shortly by the appearance of a mass in the axilla. The exploratory incision disclosed an inoperable melanotic sarcoma. This is undoubtedly the most malignant tumor known, metastases taking place by way of the blood and lymph streams very early and the primary tumor showing little change beyond sudden growth and ulceration. From the clinical history of these terrible cases it seems to me to be good surgery to remove every smooth, elevated mole with the knife and not with the cautery or caustics, as by the latter means you are simply producing an irritation which in itself may be sufficient stimulation to begin the malignant change. By removing the little tumor in its benign stage a possible source of malignancy is done away with, a malignancy that is not always recognized early because of the slight change in the mole and the first symptom of which may be evidences of internal metastases. Histologically (Fig. 7) the benign congenital mole presents a surface covered with a thin epithelium beneath which, arranged in nests and strands, are the endothelial cells and pigments characteristic of the growth.

Of the other connective tissue tumors, all have a tendency to malignant change with the exception of the lipoma. The hæmangioma or congenital nævus is apparently much less liable to malignant change than the lymphangioma or congenital mole, but when such change does occur the resultant tumor is only slightly less malignant than the melanotic sarcoma. The appearance of the nævus is familiar to you all and is recognized by its red color, disappearing on pressure. The malignant change occurs usually late in life and is evidenced by ulceration and

rapid growth of a spongy, red tissue. Two kinds of angiosarcomata are recognized, according as the growth arises from the inner or outer coat of the vessel. The former is the type usually arising from lymph vessels and the latter from blood vessels. These latter, the perithelial angio-sarcomata, appear on section as mottled white and red tumors of rather friable consistency. Histologically, the growth is seen to be composed of blood vessels surrounded by many layers of round sarcoma cells. A benign type of angioma which may not be congenital is the pedunculated tumor in which the vessels are surrounded by connective tissue, giving it the name fibroangioma (Fig. 8). Here the abnormal growth is more deeply seated, has a bluish appearance and can be reduced in size by pressure.

In discussing fibroma, it is customary to class it among the benign tumors, yet a pure fibroma may occur after enucleation or partial removal and the recurrent tumor may be much more cellular than the original. The amount of fibrous tissue and the presence of fibroblasts is a good indication of the benignancy of a fibroma, while an unencapsulated tumor pretty rich in spindle and round cells would be classed among the sarcomata. As a matter of fact there is no sharply marked dividing line between the fibroma and the spindle celled sarcoma. We have one specimen each of a pure fibroma and a fibro-spindle celled sarcoma, the latter being a recurrence appearing shortly after the removal of the primary tumor with none of the surrounding tissue. The recurrent tumor (Fig. 9) was unencapsulated, superficial, not ulcerated and was removed with a large area of skin and subcutaneous fat. It is too early to judge of the ultimate result in this case, but there is little doubt but that a cure will be effected, as this is the ordinary experience in dealing with these border line tumors.

We have had one specimen of a pure myxoma, also a recurrent tumor. This appeared as a pea-sized nodule covered with epidermis, not deeply attached and was excised with a large area of skin and fat. On section, the translucent gray tissue, fairly well encapsulated, is characteristic, while microscopically (Fig. 10) the embryonic connective tissue cells in a clear matrix completes the diagnosis. Although this tumor is classed as a benign growth, its tendency is to recur unless given a pretty wide berth.

The last tumor I will mention is quite a rare one, a specimen of which fell into our hands about two years ago. The patient came to us with the large fungus growth in the skin of the epigastrium with a history of three or four months' duration (Fig. 11). I immediately diagnosed blastomycosis but took some cultures and excised a portion for microscopical examination. No yeast cells grew in the cultures and I was not able to demonstrate them in sections, so I soon changed my diagnosis to mycosis fungoides, a condition to which it conforms clinically and

pathologically. From our experience in this case and from the literature, it seems pretty clear that the treatment is the X-ray, our case making marked improvement after several applications.

In conclusion to the discussion of the work done here and in accordance with the findings in the literature, I wish to enter a plea for the early removal of all tumors of the skin as soon as discovered, and all congenital tumors as soon as any change is noticed in them. Temporizing with the X-ray is not permissible unless an examination of a portion of the growth demonstrates a basal cell tumor. Caustics serve merely to irritate the tumor cells and so tend to increased malignancy. Amputation where practical and local wide excision with extirpation of the adjacent glands is the treatment for the malignant spinal cell carcinoma; while local wide excision and glandular extirpation should be practiced for sarcoma.

### THE CLINICAL SIGNIFICANCE OF SUB-FEBRILE TEMPERATURE IN PULMONARY TUBERCULOSIS.\*

PRELIMINARY COMMUNICATION.

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**T**HE term "subfebrile temperature" in this paper is used, according to the definition of Wunderlich<sup>1</sup> to represent slight elevations of the temperature above the normal, extending from about 99.3 degrees to 100.4 F. (37.4 to 38 C.).

#### *Normal Temperature.*

The arrow on the clinical thermometer represents the mean of the daily variation of temperature in a large number of apparently healthy individuals. The statements regarding normal temperature found in text-books are largely based on the studies of Wunderlich, Liebermeister, Von Barenprung and others about the middle of the last century. Though in the main their conclusions have stood the test of time the whole subject should be investigated anew. Latent disease in apparently healthy people may be as Wunderlich recognized a source of error in such studies and to-day we have in the tuberculin tests and the Wasserman reaction means for detecting such conditions which were not available to him.

As is well known, each individual has his own temperature curve the lower limit, which may be as low as 97 degrees F. (36.2 C.) being reached soon after midnight and the upper limit, which has been given by Wunderlich and others as 99.5 F. (37.5 C.) sometime between five and eight o'clock. People who work at night are said to

have an inverted curve. The normal mean for any individual may then be either above or below the arrow mark providing the assigned limits are correct. The factors which cause the daily variations are as we would expect principally those which cause alterations in metabolism and produce heat loss or heat production or affect the heat regulating mechanism. They are rest, sleep, the digestive processes, physical exercise, mental exertion, long continuance in a heated atmosphere, exposure to cold, etc.

Heat regulation in children and the aged is said to be somewhat less perfect than in middle life, and probably also in men than in women. In women the normal temperature is said to be slightly higher than in men. Menstruation may perhaps be accompanied by a slight rise in temperature. Even in health various exceptional influences may cause a rise beyond the extreme normal limits. Mountain climbing and severe physical exercise of other sorts have been reported to have raised the temperature of healthy individuals as high as to 104 degrees. After such occurrences the normal is quickly regained.

Though more observations on healthy persons should be made it is reasonably well established that the variations of temperature in health are very slight under the ordinary conditions of life and that any elevation above 99.5 F., 37.5 C. should be considered pathological. It is questionable whether this is not too high a limit for the majority of well people and whether 99.37/2 C. or (99.2) 37.3 C. should not be considered abnormal unless it can be shown that the patient's normal mean has always been above 98.6. Such cases have been reported<sup>2</sup> but are probably rare.

#### *Cases of Subfebrile Temperature.*

*Tuberculosis.*—According to the old German saying in the presence of continued fever one's first thought should be of tuberculosis. This, however, does not mean tuberculosis of the lungs only. It is as Moffitt states not at all uncommon to see children or young adults with long-continued or more rarely recurrent pyrexia dependent upon tuberculosis of the mediastinal, mesenteric or retroperitoneal glands. The process may go on to healing without involving the lungs at all. Tuberculosis in other situations may be accompanied by subfebrile temperature.<sup>3</sup>

#### *Syphilis.*

The frequency and importance of fever as a symptom of syphilis, especially of the secondary stage, is scarcely as well recognized as it should be. It may, according to Osler be a mild continuous pyrexia, not rising above 101 degrees F., 38.4 C., or it may be distinctly remittent or intermittent in type. Janeway has called atten-

\* Read at the annual meeting of the Medical Society of the State of New York, January 25, 1910.

<sup>1</sup> Wunderlich. *On the Temperature in Diseases.* The New Lydenham Society, London, 1871 (Translation).

<sup>2</sup> S. Weir Mitchell. Discussion of Dr. Moffitt's paper on "Long Continued Fevers." Transactions Association of American Physicians. 1907, xxii, 495.

<sup>3</sup> Moffitt. Long Continued Fevers. Transactions Association of American Physicians. 1907, xxii, 495.



tion to cases in which a diagnosis of pulmonary tuberculosis has been made.

### *Sepsis.*

Richard C. Cabot<sup>4</sup> recently went over the autopsy records of the Massachusetts General Hospital for four years in reference to long-continued fevers and their classification. Over 90 per cent. of all long-continued fevers of more than two weeks' duration fell under three heads, typhoid fever, sepsis and tuberculosis. Of the septic fevers one of the commonest forms in obscure cases is that due to chronic malignant endocarditis.

Moffitt<sup>5</sup> in a paper before the Association of American Physicians mentions many other causes for continued or intermittent fever. They are:

Hodgkins disease.

Malta fever.

Malignant disease, especially of the liver, such as carcinoma and sarcoma.

Intermittent hepatic fever, Charcot's intermittent fever, gall stone fever.

Multiple myeloma.

Typhoid fever with repeated relapses.

Pyelitis.

Renal lithiasis.

In *malaria* the plasmodium should be found in the blood if sufficient examinations are made.

While nervous dyspepsia is usually afebrile, Leven<sup>6</sup> claims that many dyspeptics are treated for pulmonary tuberculosis who do not have the disease and describes a special type of pseudo-tuberculous dyspeptics in whom there may be slight elevation of temperature and other symptoms of tuberculosis of the lungs and who are frequently treated as such.

DuBois<sup>7</sup> makes the same statement regarding neurasthenics. On the other hand it must not be forgotten that true cases of consumption are often for a long time treated as cases of dyspepsia, chlorosis and nervous prostration in most instances until all hope of cure is gone.

Persistent chronic bronchitis may be accompanied by slight fever which, however, is usually, according to Brown,<sup>8</sup> of short duration. He also states that persistent fever may be due to pyorrhea alveolaris.

### *Subfebrile Temperature as a Symptom of Pulmonary Tuberculosis.*

Continued or repeated slight elevation of temperature is certainly one of the cardinal symptoms of incipient pulmonary tuberculosis. That it is not pathognomonic is shown by its occurrence in the conditions just mentioned.

It may be due to incipient tuberculosis in the

lungs even when physical signs in the chest are entirely negative, just as there may be no abnormal signs in the chest, even though there is definite hemoptysis, or though tubercle bacilli are found in the sputum.

The tuberculous patient is extremely sensitive to all causes tending to elevate the temperature. This instability in persons usually without fever is in itself an excellent symptom of tuberculosis. A febrile reaction immediately following exertion is especially characteristic and is the significant feature of the so-called "walking test." Exertion that would cause scarcely any elevation of temperature in a healthy person may produce decided fever in a consumptive.

Every known type of fever may occur in tuberculosis,<sup>9</sup> but in the usual type the fever is normal or subnormal in the morning and rises to 99.5 degrees or 100 degrees F. in the afternoon. This same type of temperature as well as the exaggerated reaction to slight influences exists in connection with other pathological conditions than tuberculosis. Attacks of ephemeral and unexplained fever are, however, in a large proportion of cases due to underlying tuberculous processes of which the location may remain doubtful. In such cases definite signs of pulmonary tuberculosis may develop after months or years.

### *Limitations of Certain Confirmatory Tests.*

In the absence of definite symptoms and signs of sufficient number and importance to settle the diagnosis we turn to the tuberculin test and X-ray examinations for confirmation of our suspicions. One of the disadvantages connected with the use of such tests is that they are very delicate. They reveal the presence of tuberculous infection that is not of clinical importance.

It is well known that many individuals recover from tuberculous infection without developing consumption and even without it being discovered that they have any tuberculosis about them. As to the frequency of tuberculous infection in general Nägeli found<sup>10</sup> what appeared to him to be evidences of tuberculosis in 99 per cent. of 500 autopsies and Burkhardt in 91 per cent. of 1,262 sections. These figures are doubtless too high for the general population since the material was taken from hospitals in the manufacturing cities of Zurich and Dresden. As Baldwin states, "the percentages estimated by most pathologists who usually regarded only gross appearances in determining tuberculous foci vary between 30 and 60 per cent. for all sections. Probably the recent estimate of Harbitz of from 50 to 70 per cent. for all ages is approximately correct.

The tuberculin and X-ray tests make it possible for us to detect the presence of tuberculous infection which may not be of any clinical significance. No attempt has been made by the

<sup>4</sup>R. C. Cabot. The Three Long Continued Fevers of New England. *Boston Medical and Surgical Journal*. 1907, clvii.

<sup>5</sup>Moffitt. Long Continued Fevers. *Transactions Association of American Physicians*. 1907, xxii, 475.

<sup>6</sup>Leven. *Revue de la Tuberculose*. 1908, v, 193.

<sup>7</sup>DuBois. *The Psychic Treatment of Nervous Disorders*.

<sup>8</sup>Brown. *Osler's Modern Medicine*. Vol. III.

<sup>9</sup>Brown. *Osler's Modern Medicine*. Vol. III.

<sup>10</sup>Baldwin. *Osler's Modern Medicine*. Vol. III.

writer to summarize all the various reports on the use of these tests which have appeared in recent literature, but the following figures will illustrate the point. In 1902 the subcutaneous tuberculin test was given to 1,000 of the more robust soldiers in the Austrian army<sup>11</sup> not more than three milligrams of tuberculin being used. Only 64 of the 575 reacting positively have shown signs of clinical tuberculosis up to 1909. As regards the cutaneous or Von Pirquet test, at first thought it is a delightfully easy and simple test which relieves the physician of thorough study of the case. A patient comes into the office with a slight cough and a temperature a little above normal the test is applied, a positive reaction is obtained and the patient has tuberculosis. He must close up his business and go to a sanitarium at once. However, the frequent occurrence of the reaction in healthy people lessens its diagnostic value as regards clinical tuberculosis very considerably. For instance, of 794 persons in whom tuberculosis was not suspected 25 per cent. showed a positive reaction,<sup>12</sup> the test being applied by different workers in different ways. The writer using undiluted old tuberculin according to Von Pirquet's method obtained a positive reaction in 45 per cent. of 159 apparently healthy children between the ages of 6 and 15, and in 29 per cent. of 258 children over two years of age.

A simple positive X-ray finding does not necessarily mean clinical tuberculosis, for the specialist frequently reports that while there are signs of tuberculosis in the chest in the form of small foci in the bronchial glands are about the hilum of the lungs he does not consider the lesions active nor that treatment is warranted upon the X-ray findings only.

On the other hand there can be no question of the great diagnostic value of the subcutaneous tuberculin test when it is accompanied by an increase of localizing signs in the chest, a true local reaction. This occurs only in a small percentage of early cases and so is of limited value. The X-ray findings may also be of much value when they are of an extent or character indicating definite activity of the process. They have the advantage over tuberculin tests that they may indicate not only the presence but the site and extent of the lesion. The mere securing of a positive tuberculin reaction or positive X-ray report does not then settle the question as to whether the patient has clinical tuberculosis even if he also has a slight elevation of temperature.

#### *Subfebrile Temperature as a Guide to Treatment.*

On account of the ease and rapidity with which certain cases of pulmonary tuberculosis pass to

an incurable stage there is the necessity for the greatest watchfulness where subfebrile temperature continues. The patient should be given the benefit of any doubt and placed at once under strict hygienic treatment carried out to the last detail so as to effectually prevent if possible the progress of any tuberculous process in the lung. There is no question also of the general tonic value of such measures. Occasionally when the full co-operation of the patient can be secured and the physician thoroughly understands the details of management this can be done at home, but there is urgent need of preventoriums, convalescent homes and sanatoriums equipped with conveniences for fresh air and rest treatment where patients could be observed for a few weeks before being sentenced to exile in a sanatorium and complete abandonment of cherished plans. If the subfebrile temperature continues for months and years without other discoverable cause the patient should be warned that tuberculosis in the lungs may develop and that a careful, well regulated and supervised life should be lived.

When the diagnosis of pulmonary tuberculosis is definitely established each slight and temporary elevation of temperature does not necessarily mean extension of the tuberculous process. Patients in whom the toxic effects of the growth of the tubercle bacilli are at all pronounced suffer from a veritable neuroses of the temperature regulating mechanism. This extreme mobility of the temperature makes it respond by extensive variations to the factors producing the very limited excursions represented in the curve of healthy persons. This extreme sensitiveness disappears in large measure as the infection is overcome.

Rise of temperature if of any duration and not due to complications indicates activity of the disease and under these circumstances treatment must be prompt and radical. It is quite generally agreed that exercise should be strictly limited in the presence of any elevation of temperature and it is a widely accepted plan to forbid exercise if there is repeated elevation above 99 degrees F.

We hear a good deal in these days about the strenuous work successfully done by consumptives at the Frimley sanitarium in England,<sup>13</sup> but it is not generally recognized that in the work there 99 degrees is considered the danger signal and any patient who has a temperature of 99 degrees and the slightest headache is immediately ordered to bed.

In the presence of continued subfebrile temperature it is a safe rule to give the rest cure a thorough trial, lasting for months if necessary.

In this connection it may be of interest to read the following incomplete synopses of the history of cases showing long-continued subfebrile temperature with only slight and indefinite physical signs in the lung and few symptoms of pulmo-

<sup>11</sup> K. Franz. Wiener Klinische Wochenschrift. 1909, xxii, No. 28.

<sup>12</sup> Lincoln. Transactions National Association for the Study and Prevention of Tuberculosis. 1908, iv, 263. Journal of the American Medical Association. 1908, li, 1756.

<sup>13</sup> M. S. Paterson. Graduated Labor in Pulmonary Tuberculosis. Sixth International Congress, Washington, 1908. Vol. 7, Part II, Section II, p. 886.

nary tuberculosis. The special point to which attention is called is the fact that in spite of long-continued slight elevation of temperature there has been as yet with one exception, in the cases which could be followed no marked increase of physical signs in the chest. The writer hopes to report their subsequent history in another communication. The rapid development of physical signs in one case shows how treacherous the disease is and how necessary it is to keep patients under close supervision until its general tendencies in them are determined. The need of better facilities in hospitals, convalescent homes and preventoria is urgent. Allowing a patient with actual incipient pulmonary tuberculosis to engage in active exercise may be followed by most disastrous results. On the other hand slight infection of the glands or even incipient disease of the lungs may sometimes be cured by adherence to a proper regimen thoroughly taught to the patient in a hospital, open-air ward or local sanitarium.

In conclusion, subfebrile temperature is a cardinal but not pathognomonic symptom of pulmonary tuberculosis. Its occurrence does not relieve the physician of the duty of thoroughly studying every aspect of the case.

CASE I.—Miss —, stenographer, first seen January 22, 1906, complained of weakness, headache, diplopia, dysmenorrhea, and chronic indigestion. No tuberculosis in immediate family. Examination of chest, abdomen and pelvis negative as regards infection. Seen at intervals during four years. Temperature almost invariably above 99, sometimes 100 degrees, and pulse above 100. Von Pirquet test positive. Has improved in health under general tonic and hygienic treatment. Has taken considerable outdoor exercise. Chest negative December 15, 1909. Temperature, 99.4, pulse, 106.

CASE II.—Mrs. —, age 38, nervous temperament, no history of tuberculosis in immediate family. Typhoid fever about 1894. Has had mucous colitis for some years. When seen, October, 1907, complained of weakness, loss of appetite, pains in chest and abdomen, sleeplessness, slight cough. Examination of chest negative. Temperature between 99 and 100 degrees on several occasions. Given subcutaneous tuberculin test at sanatorium in the Adirondacks, reacted to three milligrams O. T. temperature going to 100.6. No increase in physical signs in chest. Remained at sanatorium eight months, temperature during the entire period was usually between 99 and 100 degrees in the afternoon, often reaching the latter point. No increase in physical signs in the chest which remained indefinite during stay in sanatorium. Remained in bed without exercise during practically the entire period. Went home, gradually began to exercise and do house work. Temperature remained about the same. During the past six months has been living out of doors and taking the fresh-air cure with moderate exercise. Temperature

varies between 99 and 100 degrees, pulse, 76 to 100 in the afternoon. Now feels quite well, good appetite, sleeps well. Chest examination, January 2, 1910, a few fine rales in lower left lobe, possibly pleuritic in origin.

CASE III.—Mr. —, age 22. Family history negative as to tuberculosis. First seen October, 1908. Complained of weakness. May, 1908, had illness diagnosed as pleuro-pneumonia with typhoid. Examination of chest in October, 1908, negative, except for somewhat harsh breathing at one apex. Temperature in three-day two-hour record reached 99.6 degrees and was several times above 99 degrees. Patient went to Saranac Lake and consulted several specialists who could find no definite signs of trouble in the chest. Refused to have tuberculin tests made. Remained at Saranac Lake about six months, during which time temperature frequently reached 99.5 degrees. In spite of this fact, was allowed exercise, walking some days several miles. Returned to Albany in the spring, has since been at work and has felt well.

CASE IV.—Miss —. Nervous temperament. About January 1, 1909, complained of slight cough, pain in chest, some loss of weight, tired feeling and chronic indigestion. No family history of tuberculosis. Patient very pale. About 1906 a blood examination showed anemia of the chlorotic type. Temperature record for three days in January, 1909, showed 99.6 degrees as the highest point reached. A vacation in the country advised as chest showed no definite signs of tuberculosis. Indigestion continued with pains in abdomen and chest. Temperature frequently above 99 degrees, occasionally reaching 100 degrees. Von Pirquet test positive. Subcutaneous tuberculin test positive, 101.8 degrees being reached after the injection of five milligrams O. T. No localizing signs developed during the reaction. Patient advised to go to a sanitarium. She was greatly depressed by the thought that she had tuberculosis and has been extremely discouraged ever since. Did not improve at sanitarium under strict rest in bed. Temperature continued to reach 99.5 degrees at frequent intervals. A few rales heard at the apices while at the sanitarium. Patient left after about three months to go to her home in the country, is taking outdoor treatment, but remains in practically the same nervous condition. There has been practically no change in the physical signs up to the last examination, nine months after the first.

CASE V.—Miss —, age 20, stenographer. First seen December 24, 1908. No tuberculosis in the family. Has had slight cough with expectoration for some months. No other symptoms except slight elevation of temperature, reaching 99.8 degrees. Highest point reached in three-day record 99.6 degrees. Cutaneous test doubtful. Chest examination negative. Sputum negative. Elevated temperature, said by family physician to have been present some weeks. Jan-

uary 21, 1910.—Report from family that patient has been working steadily and is now taking a short vacation. Has been quite well.

CASE VI.—Mrs. ——. First seen April 26, 1909. Husband has active pulmonary tuberculosis. No complaint except of slight cough with slight expectoration. No localizing sounds on physical examination. Cutaneous test positive. Sputum negative. X-ray report: No parenchyma involvement. Apices clear but distinct tuberculous involvement about hilum. During four months afternoon temperature frequently above 99 degrees, several times reaching 99.8 degrees. Admitted to Raybrook, July 29th, first examination showed questionable localizing signs at left apex. Subsequent examinations negative. Has gained sixteen pounds and is now in satisfactory condition for discharge.

CASE VII.—Mr. —; clerk. First seen May 26, 1909. Age 26. No family history of tuberculosis. About one month previous to first visit had a cold in head and throat with slight cough. About one week later applied for insurance but was refused, and a few days later at a subsequent examination was told that his right lung was in bad shape. Examination May 26th by the writer revealed no localizing signs. These findings were confirmed on another occasion and also by another physician. Sputum negative. Temperature May 26, 99.2 degrees and reached this or a higher point up to 99.4 degrees on several occasions during the following week. No cutaneous test or X-ray examination permitted. The patient returned to business and has spent a strenuous summer and fall. He never felt better in his life as a letter from him January 18th states. He takes vigorous exercise having been an athlete at college and runs in the morning from  $\frac{1}{4}$  to  $\frac{1}{2}$  a mile on his way to the office. No recent data regarding temperature received.

CASE VIII.—Mr. —, age about 19. First seen March 24, 1909, printer's helper. Afternoon temperature usually 99 to 99.6 degrees until June. No localizing signs in the chest detected at first examination. Sputum constantly free from tubercle bacilli. X-ray examination (Dr. Holding), showed pronounced *en masse* infiltration of the glands about the hilum of the left lung, scattered conglomerate tubercles in the right lung. Haziness of the upper left lobe. This patient was advised to apply for Raybrook and before his admission June 26th, definite localizing signs appeared in the form of fine and moderately coarse rales over the anterior part of the upper left lobe, especially pronounced after expiration followed by a cough. He has improved steadily at the sanitarium. The physical signs have decreased in extent. His temperature is now normal and there is every prospect that he will be discharged as an apparent cure.

CASE IX.—Mr. —, age 19, printer. First seen March 1, 1909. Had slight cough, some loss of weight. Temperature in the afternoon fre-

quently 99.6 degrees, pulse not above 100. Only doubtful rales at the apices heard on physical examination. Several subsequent chest examinations were entirely negative. Sputum was negative. X-ray examination: Dr. Holding reported the hilum of the lung clear. Rieders lines of lymphatic tracery seen in the right lung the parenchyma of which was slightly hazy. Scattered calcified tubercles found in the parenchyma. He did not think the plate showed evidence of clinical tuberculosis. The patient was admitted to Raybrook June 4th, with slight auscultation changes heard only at left apex. His temperature on admission was 99.6 degrees, which continued for some time dropping to normal after about four weeks. He continued to have slight exacerbations of temperature to 99.6 degrees during the entire course of his treatment, at one time reaching 100 degrees. He was discharged September 18th weighing twelve pounds more than at entrance. Since his return to Albany he has been free from all elevations of temperature. An examination in December, 1909, showed doubtful rales at the left apex.

CASE X.—Nurse, age 22. Seen by writer in consultation, March 4, 1908. One sister died of tuberculosis. No serious illness except catarrhal jaundice about Christmas, 1908. In the latter part of February suffered from an attack of acute tonsillitis. All symptoms of this condition disappeared and the temperature returned to normal but after a few days rose every afternoon to about 100.5 degrees and was repeatedly above normal for a period of two weeks. Pulse 100 to 104. Chest examinations by her physician and by the writer showed nothing abnormal. The Von Pirquet and Morro cutaneous tuberculin tests were both positive. The X-ray picture showed no evidence of clinical tuberculosis. In spite of temperature slightly above normal she was allowed to return to work and has been at work ever since. Has been apparently well and has gained in weight. No recent data regarding temperature obtained.

CASE XI.—Miss —, age 14. First seen May 13, 1909. Complained of slight cough. On physical examination a few scattered rales heard opposite the 7th to 10th v. s. Temperature 100.2 degrees, pulse 128. On May 15th they were practically the same. During the summer while the child was resting most of the time her temperature was normal though the pulse remained very rapid. Since September 3d it has nearly always been above 100 degrees, once reaching 101.5 degrees. The pulse has varied from 122 to 140. Examination of the chest on two occasions has shown no abnormal signs referable to the lungs except one occasion during an acute cold scattered rhonchi were heard on both sides of the chest December 4, 1909, at the bases. On auscultation of the heart a systolic murmur has been heard in the pulmonary area and occasionally at the apex not transmitted. Leucocyte

count January, 1910, 9,000. The Von Pirquet cutaneous tuberculin test was positive. She feels well and has gained in weight.

## THE DIAGNOSTIC VALUE OF EOSINOPHILIA.\*

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THE term leucocytosis usually conveys but one meaning to clinicians, viz., an increase in the number of the circulating leucocytes. The difference between an absolute and relative leucocytosis was long ignored. To-day the relative leucocytosis is of greater diagnostic import than the mere numerical estimation of the leucocytes. It is not exaggeration to state that for any single hematological procedure the differential leucocyte count is the most valuable.

The technique of staining smears is so simplified that a neophyte will have no difficulty in securing an excellent specimen for microscopic investigation. The time required is frequently urged as an objection. Fifteen or twenty minutes devoted to differential leucocyte counting will often give more diagnostic suggestions than can be secured by utilizing the same period of time in any other manner.

Of the various forms of relative leucocytosis, none is more readily determined than eosinophilia. The eosinophilic cell with its large refractile, coarse, black granules, easily stainable, and its polymorphous nucleus is a striking picture in a hematological field.

It is not my intention to consider the historical aspects of eosinophilia from the times of Wharton Jones, Förster, and Schultze through the excellent studies of Ehrlich, V. Jaksch and Neusser to the noteworthy clinical demonstrations of Grawitz, Zappert, Buckler, Opie, Ewing, Stengel and others. Nor is it my purpose to reason why the eosinophilic cells appear—whether they arise in defense against toxic influences and the granules are antitoxic in nature or whether eosinophilia is an expression of nervous irritation (Neusser) or are called forth on chemotactic principles by substances arising from the destruction of epithelial cells (Ehrlich), whence comes the eosinophile does not belong to the topic chosen for discussion. Our sole point of view is: what may be gained by the determination of eosinophilia; what is its diagnostic import?

At the outset it must be borne in mind that a hematological fact is merely a symptom. An isolated blood count does not establish a diagnosis any more than does a single test for albumen in the urine or a red throat. The determination of eosinophilia merely adds a symptom to the general complex characterizing any disease.

The diagnostic significance of eosinophilia therefore, merely means what diagnostic suggestions one may secure by observing the symptom of eosinophilia in the course of examination of a patient. At the risk of boring I may state that eosinophilia is a symptom which requires interpretation in the light of all other clinical findings present at the time the blood specimen was secured and not at the time the actual counting is done.

Ordinarily a discussion of the increase of eosinophiles would include a consideration of the diseases characterized by a decrease of the oxyphilic cells. I shall omit this phase of the subject save to call attention to the absence or decrease of eosinophiles in typhoid fever and grippe.

The prognostic value of eosinophilia is most important, but beyond the scope and time for this discussion. I can not pass it by without pointing out that the return of the eosinophiles to the circulation after they have disappeared is of most excellent prognostic import.

The normal percentage of eosinophiles has been variously stated. I believe that 1 per cent. to 4 per cent. marks the average normal variation in the majority of normal adults. The eosinophiles are usually about 1 per cent. or to 2 per cent. higher during infancy and childhood.

Eosinophilia is a term applied to a relative leucocytosis wherein the eosinophiles are increased whether the total number of leucocytes is increased or a leucopenia exists. It is important to appreciate that during digestion and after vigorous exercise the eosinophiles are slightly decreased. Neusser states that castration also causes a decrease. In most infectious diseases as pneumonia, typhoid fever, grippe, sepsis, etc., there is a diminution of the oxyphilic leucocytes.

The most prominent eosinophilia exists in trichiniasis. The eosinophiles may constitute as high as 68 per cent. of the total number of leucocytes. This marked eosinophilia is valuable in differentiating trichiniasis from typhoid fever, myositis, muscular fatigue, neuralgia and various other conditions with muscular or gastro-intestinal symptoms. Schleip regards this high eosinophilia as pathognomonic of trichiniasis, but errs in thus doing. Seligman and Dudgeon have reported 57 per cent. eosinophiles in a patient with hydatid disease of the liver.

In uncinariasis, the relative eosinophilia may reach as high as 70 per cent. The eosinophilia becomes pronounced in the early stage of the disease and is fairly constant even before any other symptom may present itself. Various other intestinal parasites may give increases of the eosinophiles. In fact, any unexplained anemia, accompanied by eosinophilia practically demands an examination of the feces for evidences of parasites. *Tænia* may or may not give an increase. *Ascaris lumbricoides* has a moderate increase averaging in my series 19 per cent., which is higher than usually stated. *Oxyuris*

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vermicularis averaged 15 per cent. in my series, though about 30 per cent. of the cases presented no increase of the eosinophiles. Bothriocephalus latus infection only rarely exhibits an eosinophilia.

Filariasis is associated with eosinophilia which according to Whyte, often parallels the number of embryos circulating in the blood.

Eosinophilia is quite a constant phenomenon in many skin affections as dermatitis herpetiformis, pemphigus, lupus, herpeszoster. Urticaria often induces a high eosinophilia. Leprosy, chronic-eczema, psoriasis and many other dermatoses present these unexplained increases of the eosinophiles. While eosinophilia has been reported as occurring in pellagra, I believe that it has depended upon intercurrent conditions as intestinal parasites. The latest report by Hyde shows on the contrary a decrease of eosinophiles.

Luetic eruptions in the secondary stage, as a rule are accompanied by only a slight eosinophilia, if any. In the tertiary stage eosinophilia may become pronounced, especially if bone lesions exist.

Scarlet fever presents a marked eosinophilia when the disease is well advanced, while measles, rubella, and erysipelas fail to show an increase. The various rashes following the injection of different sera present no eosinophilia.

The injection of tuberculin is not infrequently attended by a rise of the eosinophiles (Zappert). In tuberculosis, during improvement I have commonly noted an increase of the eosinophiles. The decrease of the eosinophiles in tuberculosis is an unfavorable omen as has been well demonstrated by Swan and Karsner.

Emphysema reveals a constant eosinophilia averaging 10 per cent. When an asthmatic paroxysm supervenes the eosinophilia may rise as high as 28 per cent. This eosinophilia of bronchial asthma serves to differentiate this condition from cardiac or renal asthma in which the eosinophiles are numerically unchanged.

Delirium attended with eosinophilia during the puerperium points to puerperal mania as opposed to the delirium of puerperal sepsis. High fever and eosinophilia in the puerperium suggests puerperal malaria as the etiological factor instead of sepsis. Finding the plasmodium clinches the fact.

In tumor formation, eosinophilia is most usually attendant upon malignant growths. In cancer of the gastro-intestinal tract the eosinophilia is frequently noteworthy even before cachexia is evidenced. Cancer of the uterus presents the eosinophilia more regularly than any other type.

Gonorrhœal arthritis may at times exhibit an eosinophilia, but even when present this is seldom high. In acute articular rheumatism, however, there is an early eosinophilia despite the high fever. Even the persistence of a low eosinophilia of 2 per cent. is valuable to differentiate

rheumatism from septic arthritis. Eosinophilia almost constantly attends gouty conditions and helps to differentiate them from tuberculous lesions.

The characteristic eosinophilia of myelogenous leukemia is diagnostically valuable to differentiate this hematological condition from leucocytosis with myelemia.

Eosinophilia has been reported as the result of the ingestion of various drugs as nuclein and pilocarpin (Taylor), camphor (Von Noorden), potassium iodide (Wood, Neilson), dinitrobenzol (Malden), acetanilid (Brown), sodium salicylate, mercury, etc. These must be borne in mind when interpreting the diagnostic meaning of an eosinophilia.

Chorea presents a moderate eosinophilia. In differentiating the enigmatical functional neuroses, the presence of an eosinophilia is frequently most important in excluding the various diseases so often imitated by the protean nervous manifestations. Wells has drawn attention to a constant eosinophilia in dementia præcox which may be greatly increased by the administration of thyroidectin. If further investigation proves this to be peculiar to dementia præcox, it will be of great diagnostic value.

In concluding this brief discussion, almost stripped of names and figures, I cannot avoid commenting on Cunningham's statement that when eosinophiles are present to the extent of 1 per cent. it is almost certain that there is no active suppuration. Pus may be present despite eosinophilia—as may, indeed, gangrene, when the pus is encapsulated or localized within dense structures from which toxic absorption is retarded as in empyema or mastoiditis.

Accurate interpretation of eosinophilia in the light of full clinical histories demands a complete differential leucocyte count, but it has been my intention in this paper to dwell upon the diagnostic value of this single type of relative leucocytosis. The eosinophiles form an important type of the leucocytes. The diagnostic value of eosinophilia is sufficient to warrant further attention to this phase of hematology. The determination of eosinophilia is fully within the scope of every clinician, possessing a microscope, even though he may not be, what is unfortunately called, "a laboratory man."

230 West 97th Street.

## THE SIGNIFICANCE OF AMBLYOPIA.

By GEORGE M. GOULD, M.D.  
ITHACA, N. Y.

**A**CCORDING to official, text-book, at least to practical ophthalmology, the significance of amblyopia is quite insignificant. Attention is paid to blindness from one cause, but little to the refractive causes that lead to blindness of one eye, and to subnormal acuteness in the better-seeing eye. The failure in the one

thing for which the eyes were made, good physiologic binocular vision, is traditionally and actually much ignored. It is thrust out of mind, out of sight, and out of possibility of cure, by the term, *amblyopia ex anopsia*. It is supposed to be unnecessary to think of the unnecessary misfortune caused by neglect and unappreciation of both cause and cure. Formerly (and perhaps now, sporadically) some little attention was allotted to amblyopia in children, but even that little appears to be growing less. We rid ourselves of our sins, we think, by forgetting them. So, in caring for the eyes, the amblyopia of the patient is smudged with "anopsia," and both thrown out of the count. But the "anopsia" is the result of our neglect and sometime or other, says the law, our sins will find us out.

Because amblyopia (or, roughly, poor vision, from any cause) is the single thing we exist to prevent.

Because we can usually cure it.

Because we may at least prevent its increase.

The term *amblyopia ex anopsia*, shoved off into the dead Latin, helped some in the riddance of responsibility. Better would be the term amblyopia from abuse and *disuse*. But why the *anopsia*, or the *disuse*? Simply and solely (in these cases now discussed) because of the past want of any glasses, or because of incorrect ones. Why the perpetuation of the bad vision? Why its increase? Again, simply because it was not made good vision by the correct lenses. If these correct lenses are needed, it follows that incorrect lenses, or, no lenses produce pathologic vision and fix the habit of *disuse*, and increase the defect.

It is, of course, all due to the fact that the unphysiologic or morbid stimulus of any organ renders it atrophic or, in some way, morbid. The incorrect image on the retina dulls, destroys, or morbidizes the retinal and sensational mechanisms, so that the eye is slowly shut out of function. The image that has perfect definition, as the photographers say, is the only one that is physiologic or normal, and that keeps retina and brain normal and highly sensitized. But in the majority of all eyes sometimes, and in all eyes, sooner or later, there must, without lenses, be an imperfectly formed image, one not accurately focussed or defined, and thus habitually and morbidly acting upon the visual organs and functions.

Not only is there the direct injury from morbid function, but there are secondarily produced atrophies, inflammations, etc. (such as ametropic choroiditis, retinal congestions, abnormal retinal pigmentation, strains, etc.), which do further harm, by increasing visual labor, and lessening retinal acuteness. Worse still, before amblyopia from any cause is apparent, there has usually been done other great injury to the general nervous and bodily assimilative functions, from eye-strain, by the long stage of resisted ametropia,

and withstood amblyopia. For amblyopia from *disuse* is a late stage of a long-continued disease. The brain and general system has long had to suffer and endure the results of the badly defined retinal images. In doing so there is set up a third series of morbid functions in the general system which again doubles the evil and completes the vicious circle of disease.

Why and how is this amblyopia permitted and encouraged?

1. By the ancient and modern error of supposing that a mydriatic is not necessary to diagnose the exact ametropia. It is simply bad medicine, or, if it is only ignorance of the truth, then it is equally blameworthy. Men who do not use the mydriatic prescribe lenses which are incorrect, and which do harm. Why prescribe at all if the ametropia is not diagnosed? Moreover the functional is often a different thing from the static error.

2. By the correlated and equally pernicious blunder of supposing that sharpness of (non-mydriatic) 20-foot vision is the measure of the ametropic error. It has little to do in the affair. In all ametropias approximating emmetropia the accommodational factor makes temporarily sharper acuteness of vision through the piling on of minus test-lenses, when in fact the static error is in the reverse direction. Thus thousands of patients are to-day wearing too low hyperopic corrections, or minus ones the reverse of correct. In all such corrections the astigmatism, the great morbidizing factor, is generally ignored or miscorrected, the axes misplaced, etc. In great medical college professors of ophthalmology say no word in their teaching about refraction; patients are therefore given high minus cylinders when their static errors demand plus cylinders. Today one of these patients is found wearing: —Cyl. 1.50, when the real astigmatism is +Cyl. 0.37. What is the condition of the patient's ciliary muscle in such a case? Is not amblyopia and worse than that inevitable? I could give the details of thousands of such case-histories. Scientific spectacles for civilized people may not always make them at first see more sharply but they save and keep physiological the visual function. The greatest acuteness of distant, or even of 20-foot vision is very often pathological, and the glasses that give it are frequently makers not curers of disease.

3. The common mistake of thinking 20/20 vision means "emmetropia," and "no glasses needed." If measured with accommodation functional, as it is of course usually, it is calamitous. But even with paralyzed accommodation, "20/20" and the most disease-producing error of refraction may co-exist. There may be unsymmetrical astigmatism present sufficient to wreck a life; 20/20 vision is no sign of emmetropia. The ordinary cards, lights, illumination, etc., and carelessness, of the usual refraction office, are misleading. With a black-background card,

properly placed and illuminated, and with scientific methods of testing, the normal acuteness is 20/15, and even this may usually be improved by low degree astigmatic lenses. In myopia the long cone of rays in the ocular media begets another and more hurtful blunder—the overcorrection of myopia. This high correction, temporarily sharpening vision, puts the ciliary muscle to extreme action, harmfully lessens the size of the retinal image, thus creating eyestrain, and amblyopia.

4. The customary error as regards heterophoria is responsible for a vast deal of suffering and amblyopia. By that term I mean the belief that heterophoria is the cause of eyestrain. It is the result, not the cause of it. Patients come to me every day wearing prisms of every possible kind which only add to the eyestrain, because the refraction-error which caused the heterophoria is mal-corrected. The mal-correction, of course, increases the heterophoria instead of lessening it. Heterophoria is in truth a *pis aller* on the part of nature, or the making the best of a bad bargain, saving some relics of vision when the accommodation is unequal to neutralizing the ametropic error. With proper corrections by spectacles, the heterophoria would not have arisen; and, with right lenses it will almost always disappear; at least any supposed symptoms of it will do so.

5. Tenotomania adds irreparable mischief, unless good glasses are ordered soon after the snipping, and the sequent good results are credited to the scissors. Fortunately tenotomania is fast disappearing.

6. The prevention of amblyopia in children is through getting at the job before the amblyopia is too great, or before it has become incurable. Which means that the public must be instructed that the depreciation of vision in one eye is a most serious matter; that it is always preventable; that correct spectacles will prevent it; that a squint operation will neither prevent it nor cure it.

7. Amblyopia is too frequently the misnaming of the refractionists' incapacity to give perfect vision by another and unsuspected combination of lenses. After a few ineffectual trials the fatal "ex anopsia" is pronounced. In how many hundreds of cases the careful, skilful, and self-sacrificing oculist will finally get perfect visual acuteness by "hanging to it" with inexhaustible good will. I have labored for an hour at the accurate subjective tests of a single amblyopic patient, when ordinarily, but five minutes are required. Bitter experience with objective methods have taught me that, when possible, the subjective alone may be relied upon. The ophthalmometer is most tricky, and retinoscopy is only a little better. Haste is waste. When there is not too high amblyopia the injured retina may often be teased to better and better readings by inexhaustible patience and ingenuity. And only these

better lenses are precisely they which can later bring the better, or the finally reinstated habitual and perfect, acuteness.

8. The wilful ignoring of righteyedness, or of dominance of the right eye (in the righthanded, —*vice versa* in the lefthanded) dooms many patients to amblyopia, and even to lifelong disease. Prejudice and pooh-pooh will not cure. It were better to test the matter with open minds, and with willingness to relieve suffering even by foolish theories one disbelieves in. I am positively certain that there are lots of diagnoses of the error of the two eyes, by first guessing at that of the right and then saying, "Left same." In nine cases out of ten, however, the refraction error of the left eye (in the righthanded) will be found of such a nature as to tend to throw it out of function, or what is the same thing to increase its labor. In the lefthanded the reverse is the rule. The child naturally lefthanded but trained to be a righthanded writer presents a hundred unexploited problems, and demands exceptional professional care to avoid even a few of his needless miseries. Until the causal nexus between ocular function and lateral spinal curvature is recognized, our fifty million American scoliotics will be reproduced by astigmatism, ocular dominance, and the morbid writing posture.

9. Astigmatism is the great curse! In nine out of ten glasses worn by the patients of the civilized world the amounts probably, the axes certainly, are incorrect: so-called 90 deg., or 180 deg., is not in fact usually 90 deg., or 180 deg., but something different. Amblyopia is sure to remain as high as ever, and to increase under such "corrections."

10. Tilted head and its inevitable concomitant, lateral spinal curvature, is universally ignored, and the astigmatic axes correspondingly misplaced. Not only, therefore, is the head not straightened up by the glasses, but it is often made to tilt still more. In such cases the great truth is not suspected, the enormously important truth, that spinal curvature may be intermeddling with, or doubling the eyestrain by the leak of general energy through backstrain; thus the amblyopia is increased or its cure prevented.

11. Unrecognized ophthalmovascular choke, or a deficiency of macular circulation due to crowded or crossed vessels near upon, or behind the disc, is the cause of many cases of amblyopia, or "fading image." In such cases only the most meticulous accuracy in diagnosing the ametropia will make endurable the eyestrain, or just bridge over the delicate gap between physiologic and pathologic, or amblyopic, vision.

12. The prescribing optician, the eyes-examined-free man must be abolished, and also the physician oculist who does just as bad work. The prescribing optician is absolutely the product of the wrongly-prescribing physician-oculist. The latter has long taught that there is no such



thing as eyestrain; that a mydriatic is not necessary; that there are no systematic diseases due to it; that a minute with a machine is all that is needed to order good glasses. He had the popular ear, and the legislative ear, and the Gubernatorial ear, and so the optician and the department store are thus legally put in charge of the eyes and the health of the community. The result is that "rest glasses" never rest, nor ever let the patient rest. It is strange that in the attempt to make the law prevent quackery, it should encourage quackery. There is, to be sure, the added nonsense of eyeglasses, always mal-adjusted,—"killing" in the slang, and also in the real, sense of the word; patients are not seen, nor their glasses, after prescribing; there is no inquiry if worn or not worn; none if the symptoms are worse or better; no investigation is made as to the frequent need of a change of glasses.

13. The methods of charging patients, and the amounts charged, also create amblyopia and other ocular and systemic disease. They who care only for rich patients, care only for their own bank account. The office charge for rich and poor alike, can never cure eyestrain and the diseases it causes. Glasses may for awhile need frequent changing; they will be badly fitted; they will get badly adjusted; they will be left off (most patients prefer vanity to good eyes and health); subnormal accommodation exists in many cases,—these and a dozen other facts make subsequent visits frequently necessary for awhile, and the ordinary patient cannot afford five or ten dollars a visit. We should be practicing medicine to cure and prevent disease, for the love of humanity, not for other reasons too evident and deplorable to discuss. The single office fee for three months' visits, few or many, is the only just and humane one in ophthalmology.

14. The hospital and dispensary prescriptions for glasses often create amblyopia, and untold suffering. They are rarely correct. The work is turned over to the students, or to young assistants. The patients are too numerous, they cannot answer quickly or correctly because of amblyopia, or mental dullness, etc. Among thousands I have never seen a correct order for glasses come from a hospital or dispensary.

15. Unrecognized inflammatory and atrophic diseases of the eyes are frequently vaguely called "amblyopia" when they are really plainly due to nephritis or other systemic diseases. And, *vice versa*, amblyopia is said to be caused by an optic neuritis, retinitis, etc., when in fact there is no such "choked disc," or "albuminuric retinitis" present.

16. There remain the amblyopias due to cataract, senility, iritis, glaucoma, and the rest, which might have been avoided by stopping the eyestrain which caused the troubles. Ordinary senile cataract, for instance does not appear in eyes properly glassed during presbyopia. The

same holds true of "senile" amblyopia, of many cases of iritis, glaucoma, conjunctivitis, etc.

The prevention of amblyopia? By relief of eyestrain! The cure? By spectacles correcting the ametropia, accommodational strain, etc.—plus monocular exercise of the amblyopic eye. By such methods the amblyopia may always be prevented from increasing, may at least be lessened, may generally be cured. The innate and ever-ready healing power of nature is always waiting, and at our service. Distrust of it, recklessness, laziness, bunglesomeness, selfishness, prejudice—these prevent it from coming to our aid, and to the aid of our patients.

A curious and striking demonstration of the professional ignoring of the fact, of the significance, and of the cause of amblyopia has recently been published; a book has been devoted to estimating the exact loss of earning power from "weakened vision" caused by systemic or local injuries and accidents. The subnormality of visual acuteness which may have existed prior to the accident is ignored. It is evident that the claim for "weakened vision" could and should not be allowed if the precise degree had not been measured before the accident. There are millions of Americans and Germans who, without any accidents have amblyopia at least of one eye. In a large proportion of such cases proper glasses would immediately bring perfect acuteness of vision; in a second portion the spectacles (if correct) would slowly produce normal acuteness; in the remainder the amblyopia would, either wholly or in part, continue permanently. But in neither of the three classes would the amblyopia be caused by the injury. At all of this, however, the smile becomes audible when one remembers that possibly nine-tenths of all the prescriptions for glasses being incorrect, would not cure the amblyopia caused by ametropia, but would fix or increase it.

I append a few illustrative cases representing a thousand:

CASE 1.—A dozen or more years ago a woman of 43 came, giving a sad history of long-failing eyesight. There was persistent headache, pains and burning sensation in the eyes, indigestion; tension of both eyeballs was above normal (no disc-cupping), etc. There were exaggerated knee-jerks and polyuria. The symptoms that outweighed all others were those of intense nervousness, a neuroticism running into what the old-fashioned ones told her were severe attacks of "hysteria." She had been wearing glasses for years, the last prescribed having been ordered without cycloplegia, alike of course in both eyes, of course without any astigmatic correction, and, as to be expected, highly over-correcting her myopia. The woman was "at her wit's ends," because she was poor, and was compelled to write all day in a Governmental office in Washington. She was in terror of losing her position because of lessening vision and increasing bad health. And no wonder! Her static correction gave her only 20/50 vision with my cards, etc., equal to 20/60 by the usual tests. She was wearing 2.00 D. and 1.50 D. over-correction. I ordered for constant use:—

R.—Sph. 6.50—Cyl. 0.62 ax. 35°.

L.—Sph. 6.00—Cyl. 0.62 ax. 180°.

At her age, with her ametropia, the past abuse of the

eyes by bad glasses, the necessity of using the eyes every day in writing, it was indeed a sad outlook as regards the amblyopia. But in a few months there was 20/40 each eye. In nine months in the right eye there had taken place the usual presbyopic switching of the axis toward 180° but this was not complete and fixed until 1906. Changes of lenses were made often at first, until recently only once in every two or more years. Steadily the acuteness of vision improved until it became 20/30, beyond which it will hardly improve. In two years after the first visit I was safe in ordering bifocals, thus giving better distance vision and less straining for near-work. The best of the story is the complete vanishing of every systemic and ocular symptom mentioned, a great gain in flesh, with perfect, even robust health—all while using her eyes uninterruptedly at near-work. The myopia in 1909 had also not increased a jot since I first saw her. With her old glasses—"well! I owe you," she wrote lately, "my health, happiness, and life." Over-correction of myopia, non-correction of astigmatism and anisometropia, recklessness as to increasing myopia and amblyopia, carelessness as to eye-glasses or spectacles and as to adjustment, indifference to the need of frequent recorrections—such things make successful oculists, but unsuccessful patients.

CASE 2.—A woman of 35 complained of "nervous headaches" and pain in the back of neck since childhood, lack of energy, etc. Latterly she had about "broken down," and went to a Sanitarium. Twenty-one years ago she got glasses from a physician-oculist:—

R. — Cyl. 2.00 ax. 170.

L. + Sph. 1.00 — Cyl. 2.25 ax. 15.

Her static error was demonstrated:—

R. — Sph. 0.50 — Cyl. 0.62 ax. 125 = 20/50.

L. + Sph. 0.37 — Cyl. 0.62 ax. 40 = 20/50.

Three months after the first visit the vision was 20/30 and she was "quite happy."

CASE 3.—A woman of 46 had long had severe occipital headache and pain in back of neck, sleeplessness, the greatest inability to remember, foreheadache, "nervousness." Reputable physicians had ordered glasses, always "without drops," the last and probably the worst, being:—

B. E. + Sph. 0.50 + Cyl. 0.75 ax. 90 for distance only.

Her static errors were these:—

R. + Sph. 2.25 + Cyl. 0.25 ax. 90 = 20/40.

L. + Sph. 2.25 + Cyl. 0.37 ax. 60 = 20/30.

My order was:—

R. + Sph. 1.87 + Cyl. 0.25 ax. 90 } Distance

L. + Sph. 1.87 + Cyl. 0.37 ax. 60 } Bifocals

R. + Sph. 2.50 and Cyl. } Reading

L. + Sph. 2.50 and Cyl. }

All symptoms vanished in a few months. "It is heaven," she wrote. The visual acuity returned to normal. This was an exceptionally good result considering the defect, the long history of suffering, the age of the patient, and the atrocious glasses she had worn.

CASE 4.—A teacher, 38, had been thrown out of her post by headache, nausea, chronic diarrhea, intense nervousness, inability to use the eyes, attacks of migraine so desperate that "it seemed as if she would die"; oxygen was often administered, so dangerous seemed the seizures. There was suppression of urine for one or two days during the attacks, after which she could not sit up for days, recovering sooner if nitroglycerine was administered. This, with strychnin, was given for 1½ years. The gynecologists removed her ovaries, etc., etc. She seemed doomed to hospital and sanitarium life and permanent invalidism. Glasses had been worn for years, from great oculists, but only for near-work, and the last were:—

R. + Cyl. 0.50 ax. 80.

L. + Cyl. 0.50 ax. 100.

Instead of this she needed, to save eyes, health and life:—

R. + Cyl. 1.12 ax. 82 } Distance } Bifocals  
L. + Cyl. 1.12 ax. 100 }  
R. + Sph. 0.75 and Cyl. } Reading }  
L. + Sph. 0.75 and Cyl. }

But the visual acuity was only scant 20/25. I have never seen this patient since, she lived so far away. Within three months I heard from her that she had gained 15 pounds and was looking out for a school. Within nine months she had grown stout and strong, was enjoying work, etc. One year later she wrote: "Having every happiness so far as health goes." Visual acuteness was thought to be normal.

CASE 5.—A man of 23 complained of headache; an oculist, without using a mydriatic, had ordered:—

R. + Sph. 4.00.

L. + Sph. 4.50.

It was lucky for this man that the astigmatism had been neglected because he was wearing as atrociously fitting eye-glasses as any European celebrity. His visual acuteness was fast going to the bow-wows because his static error was:—

R. + Sph. 4.25 + Cyl. 0.87 ax. 160 = 20/30.

L. + Sph. 6.25 + Cyl. 1.00 ax. 180 = 20/30 +

The man was a civil engineer, and had to give up his profession, at least temporarily, because his work demanded exceptionally sharp vision, and I could not, under the distressing circumstances promise him immediate reinstatement of the needlessly injured acuteness of vision.

CASE 6.—A man of 43 had been wearing:—

R. — Sph. 0.37 — Cyl. 0.12 ax. 180.

L. — Sph. 0.37 — Cyl. 0.50 ax. 10.

His eye-strain could be relieved only by:—

R. + Cyl. 0.75 ax. 100 = 20/30 +

L. — Sph. 0.37 + Cyl. 1.50 ax. 100 = 20/25 +

This astigmatism had produced a striking malposition of the head and the plainest lateral curvature of the spine. What a debt of gratitude he owes to his first oculist!

CASE 7 was that of a woman of 39 with a lifelong history of "bilious attacks," "nervous prostration," inability to use eyes, and all the rest. For the last twelve years she has vainly sought relief at the hands of oculists of good standing; the last ordered:—

B. E. + Cyl. 1.00 ax. 90.

I ordered for her:—

R. — Sph. 0.25 + Cyl. 1.87 ax. 100 = 20/15 slowly.

L. + Cyl. 1.75 ax. 85 = 20/30.

All former glasses, she vowed constricted and clutched her throat. Whenever she put them on she could not sing, and her voice became husky when she wore them. In a short time she reported "no dyspepsia," and "sleep better." There has been no hoarseness, constriction of the throat, etc., and the visual acuteness despite severe ocular labor has become almost perfect = slow 20/15.

CASE 8.—A lad of 8, right-handed, was in bad health, complaining of chorea, of the right arm, headache, stammering and other speech-defects when he came to me wearing from an oculist:—

R. + Sph. 2.00.

L. + Sph. 2.50 + Cyl. 0.25 ax. 90.

What he needed to make him healthy and save one eye was:—

R. + Sph. 1.50 + Cyl. 1.62 ax. 90.

L. + Sph. 2.00 + Cyl. 1.00 ax. 90.

It took several years of attention and glass-changes to bring about complete relief of all symptoms, and an increase of visual acuteness from 20/40 to normality.

CASE 9.—She was 39 and had not been able to read or study much all her life; she had got glasses once, but her doctor told her that she did not need them; so she had trusted; and I found:—

R. + Sph. 3.00 + Cyl. 0.75 ax. 90 = 20/40.

L. + Sph. 3.25 + Cyl. 0.87 ax. 115 = 20/50.

Comment is superfluous.

CASE 10.—In September, 1907, a woman came to me wearing, from a physician, simple plus spherical lenses 1.50 D., alike in both eyes, and with between 20/30 and 20/40 visual acuteness. Up to five years ago this patient had had sick headaches every three or four weeks, with severe indigestion; "lives only by the greatest care in diet;" backache and other symptoms. The error of refraction on account of the lifelong uncorrected eye-

strain and the resultant amblyopia required a mydriatic to diagnose, and was as follows:

R. + Sph. 1.12 + Cyl. 1.00 ax. 50.

L. + Sph. 1.25 + Cyl. 0.75 ax. 130.

Ordered for distance, less spherical 0.37. She had never been given distance-lenses, had never had her astigmatism corrected, and had never been given the necessary bifocal glasses. With these blunders corrected, there was, of course, much complaint,—the brain and eyes had to relearn the art of seeing. It was a long and severe tax upon both doctor and patient. Within four months the latter reported absolute freedom from headache and digestion 75 per cent. better, "gaining a pound a week instead of being a chronic dyspeptic." In another month there was also betterment as regards the back (there was decided lateral spinal curvature) etc. Then came a severe attack of influenza, and I asked the patient in six months from the first visit to make the long journey again. I then found accommodational and refractive changes had taken place, but there was the greatly desired improvement in the acuteness of vision,—to 20/25, each eye. Within eleven months of the first visit there were again complaints and another visit was necessary. After such a history one must expect great changes to occur, and frequently, as the health and the acuteness of vision improve. By this date the error of refraction had so changed that this is the prescription then written:

R. + Sph. 0.87 + Cyl. 1.25 ax. 30	} Distance	} Bifocals	
L. + Sph. 1.25 + Cyl. 0.75 ax. 90			
R. + Sph. 2.50 w Cyl.			} Reading
L. + Sph. 2.37 w Cyl.			

With this correction the acuteness at last reached 20/20 + with either eye. "You will be glad to learn," she wrote soon, "that my eyes are all right. I haven't been so well before: vision good, no indigestion, have gained in weight, etc." In ten months headaches began returning, she wrote, due, she thought, to worry and family trouble. I felt it was switching astigmatism and not worry that caused the mischief, and the last visit proved that it was so. If this patient had been unable to return so often, had she not kept the faith, the amblyopia would have grown greater, cataract would have probably followed, and the health and life would have gone as millions of others are going. Frequent and the most painstaking estimate of the changing refraction errors are especially necessary in all such cases. Had the first visit been for a month later no cure might have been possible.

## CORRESPONDENCE.

Dr. A. T. Bristow, Editor N. Y. State Journal of Medicine, New York City:

DEAR SIR:

Your leading editorial in the December number of the JOURNAL has just been read by me and is so to the point, if rather discouraging, and calls for discussion by all, I believe, and from all points of view. The situation is too true, and, I believe, more so in New York City, from what I hear, than in other parts of the State. Whenever the profession becomes overcrowded that is bound to occur, is it not?

Since taking the New York State secretaryship I have had my attention more closely directed to the conditions, and have been surprised at the great enthusiasm displayed by physicians in taking up this work. All over the State we are starting this movement, and I do not think it is to be accounted for by assuming, because it is largely in the hands of women practitioners (assisted by county society committees in most places), that because women are expected whose wide sympathies and greater desire for general helpfulness this movement appeals to them more; but I believe they find it an outlet for expression of their highest ideals, which are too much suppressed by the grind of competitive clinical practice.

As for the public, they are more than ready for the information we desire to furnish when appealed to. May this not be partly attributed to the ever-present desire to "get something for nothing"? But, also, is there not a deep-seated idea that they are paying their money and not getting full value in return?

It appears to me that the general public is fifty years behind, in general medical knowledge, other branches of information. And is not the remedy for restoration of faith in physicians and the redeeming of the medical profession from the degeneracy to which it is tending a full and open exposition of medical ideals, further information on medical topics and a vigorous campaign for medical knowledge? What work is now being done in such haphazard fashion—here and there in magazines or lectures. What better way to spike the guns of the quacks and irregular practitioners? I believe to take the public into our confidence would lead to better understanding between public and physician, and to the employment by the State of dozens of physicians who should keep the community in good health. Our health officers are ineffective in many cases because they are not supported by the medical profession as they should be; and they will not be supported as long as it is going to take away the income of the individual. But with a local State representative, or a board paid by county or State, he would be backed up effectually and the community satisfied.

Is it not better that the medical profession be reduced in number one-half than that the ignorance of the public should longer continue? and better that medical colleges and public should realize this as soon as possible? To put aside truth is surely never the part of wisdom.

I do believe it should and would so like to see the medical profession turning its attention to the education of the public in the necessity of preserving health. This in itself ought to lead to greater employment of physicians. Then to the bringing to bear, *through the public*, of influence on legislative bodies for the more generous employment of physicians for conservation of health. This is in line with the prevailing trend, and seems the natural outcome to me; otherwise we will have chumps of specialists banded together, as is already done to some extent, and tending to make lack of harmony.

Will you pardon this long communication? And do not believe me a rider of a hobby. Also, do not understand that the Public Health Educational Convention has any idea of giving instruction in clinical medicine, nor that they can hope to accomplish a great deal. I enclose outline of work, and also wish you would give it notice in next JOURNAL or so. Would be glad to have you refer to Dr. R. S. Morton, National Chairman, who is in touch with officials of A. M. A. in furthering this movement.

Thanking you for your attention, I remain,

Yours most respectfully,

M. MAY ALLEN,

Rochester, N. Y.

Dr. Algernon Thomas Bristow, 17 West Forty-third Street, New York City.

DEAR DOCTOR:

I have read with a great deal of interest and appreciation your editorial entitled the "Economics of Medicine," and would like to say that there is not one word in it that I am not entirely in sympathy with. Not only does the law refuse the medical profession decent protection, but at times subjects it to actual persecution. Take, for instance, the report of contagious diseases in New York City. Every practitioner in New York is required to report contagious diseases to the Board of Health at once under pain of severe punishment. If a man is honest and law-abiding he does this without question. If his patient happens to be in an apartment house placards are stuck up in various localities, to the mortification and serious annoyance

of patients irrespective of whether efficient quarantine can be carried out or not. This causes a great deal of real annoyance and mortification to the family and friends of the patient, with the result that in case of minor contagious diseases, at least, which can be readily concealed, the patients are inclined to give up the honest physician who does his duty and employ the dishonest one who is willing, in the language of the Bowery, "to take a chance." It is a grave question in my mind whether a physician should be required to report contagious diseases to the Board of Health or not. The only knowledge that he has of the contagious nature of the case is obtained in the confidential relations which are supposed to exist between patient and doctor. I do not believe that he would be allowed to give such evidence upon the stand as a witness, and I do not believe that he should be forced to give this information to the Board of Health. It seems to me that we are being placed in a dishonorable position when we are forced to divulge the secrets obtained in this manner, and I do not believe we should be punished if we fail to do it. The family of the patient are the ones who are responsible and the ones who should be punished if the case is not reported.

You have asked for a suggestion for the solution of our difficulties in the question of unfair competition with men who have not obtained sufficient educational qualifications. I believe that it is useless to attempt to get proper protection from the Legislature. Just as soon as any body of quacks get sufficiently numerous they will always be able to bring plenty of pressure to bear upon the Legislature to give them recognition. Their clientele is usually made up of patients who are at the start at least not seriously ill. These patients would under ordinary circumstances go from one honest doctor to another looking for relief; relief which they would only obtain from a bombastic and ready-witted quack. Therefore, as far as they are concerned, I do not think that we suffer very much loss. Of course, when these unfortunate people become seriously ill they send for the quack, who treats them until they are nearly dead, and then a regular physician has to be called in. It is here that the public gets the worst of it. Nevertheless, it seems to be very evident that the public like to be fooled, as long as they are petted while this deception is going on. They have demonstrated the fact that they not only like it, but are willing to pay handsomely for it, and use their influence in the Legislature to be allowed to pay for it. Therefore, we might as well make up our minds that they are going to have it and simply stop fighting it, only refusing to have anything to do with it. It has occurred to me that the medical profession might be elevated if the reputable schools would get together and try to eliminate from medical study those men who will be forced to dishonorable practices or starvation for lack of means. This end might most honorably and best be obtained by preventing the beginning of medical study in all those who could not show a reasonable chance for competency after beginning the practice of medicine. This may seem drastic and possibly unfair, but it would certainly be the most merciful thing to do. To educate men at a heavy expense, and then throw them on the world to get their money back as best they can, is certainly no fairer or more merciful. In addition I would suggest the formation of a combination of medical schools which would confer some extra degree upon a man after he had had a given hospital experience, or a commensurate experience in private practice. For instance, like Fellowship in the Royal College of Surgeons. I believe that this title could be protected by law and unauthorized persons punished for using it. If this idea were adopted, then a physician could place after the letters "M.D.," or substitute for them, the additional letters setting forth the fact that he was a man of experience and worthy of the confidence of the community. The title of Doctor of Medicine no longer has any consequence or creates any special confidence in the mind of the public at large.

The horse doctor, dog doctor, chicken doctor or monkey doctor, not to speak of the osteopath or the opathies, all have doctor after their names. It seems to me that a scheme of this kind would put the medical profession on a very high plane, and leave the question of commercialism to those who only go into the profession for money-making purposes alone; also, at the same time the dear public could enjoy their quacks or quakeries to their heart's content. When things get too bad the regular and honorable physician will have to be called in, and will then receive proper remuneration and proper credit. I am not at all sure that the various restrictions put upon the practice of the healing art are not a mistake. If there were two great classes of men practicing medicine, one well educated, honorable, upright, able and independent and the other simply looking for money, who could not raise the howl that they were being prevented from doing the world good by the regular profession, I believe that the public would soon get on to them and they would die the natural death they deserve.

Hoping this letter will appeal to your ideas, I am,

Very sincerely yours,

J. P. THORNLEY, *Chairman.*

MAY 6, 1910.

One of the most interesting resolutions passed by the House of Delegates at its meeting in Albany in January, 1910, was that a Committee should be appointed of the former presidents of the Medical Society of the State of New York and of the recent New York State Medical Association to provide for and carry into effect a celebration on May 6th in honor of the eightieth birthday of Dr. Abraham Jacobi. This committee has been organized by the selection of Dr. J. D. Bryant as Chairman, Dr. J. Riddle Goffe as Secretary, and Dr. George H. Fox as Treasurer. A circular letter of information has been sent to the presidents and secretaries of all the county societies and published in the JOURNAL. Subcommittees have been appointed and the work of preparation is well under way for a reception which is to be given at the New York Academy of Medicine, 17 West 43d Street, on the evening of May 6th from 8 to 11 P. M. The officers of the Academy very graciously placed the building at the disposal of the Society.

The committee on Testimonial are having a three-quarter length "portrait relief" made in bronze which is to be presented to Dr. Jacobi as the gift of the Medical Society of the State of New York.

The artist, Miss Fishmuth, has studied sculpture under Rodin in Paris, Von Eucritz in Berlin and G. Börglum of this city. Her work has attracted much attention and she has exhibited in the Salon in Paris, and four years ago won the St. Gauden's Prize in sculpture yearly awarded in the competition in the Art Students' League of this city.

It is hoped that all members of the Society will make an earnest effort to attend the reception on May 6th and thus pay due honor to one who has contributed so much toward the

advancement of the profession. Bronze replicas of the portrait may be purchased for fifteen dollars. Plaster of Paris facsimiles for five dollars. No replicas in bronze or plaster will be made *except to order*.

The letter of Dr. Stephen Smith, which follows, is an interesting commentary on Dr. Jacobi's career:

300 Central Park West, March 1, 1910.

*Dr. Wisner R. Townsend, Secretary.*

MY DEAR DR. TOWNSEND:

I beg to acknowledge the receipt of the invitation of the Committee of the Medical Society of the State of New York to a banquet to Dr. Abraham Jacobi on the occasion of his eightieth birthday, and to express my regret that, in anticipation of being absent from the city at the date of the proposed banquet, I can only participate in it by contributing to its fund and submitting to the Committee a reminiscence.

I have always had a kind of paternal interest in the career of Dr. Jacobi as I had somewhat to do with introducing him to the medical profession of this country. It happened soon after my graduation in 1851, that I became an Associate Editor of the *New York Journal of Medicine*. As the junior editor it was my duty to secure contributions from the leading physicians and surgeons of the city by personal solicitation. In the course of these visitations I made the acquaintance of Dr. Emil Noeggerath, a German physician who had lately become a resident, and was devoting himself to the new specialty—"Gynæcology"—and contributing papers to medical periodicals. He was a most genial gentleman, of quite an effeminate face and manners, but an advanced thinker and conservative practitioner. My brother, Dr. J. Lewis Smith, had begun to devote himself to pediatrics as a specialty and suggested to me that as its most valuable literature was appearing in the German periodicals, it would prove an interesting feature of the *Journal of Medicine* if I should secure a German student to make selections and translations of leading writers on this subject, and publish such excerpts regularly. I at once sought the advice and assistance of Dr. Noeggerath, who cordially approved the suggestion, and stated that he knew the man who was not only admirably qualified to do the work, but who needed just that opportunity to make himself known to the profession, for he was devoting his practice to pediatrics. He wrote on his card introducing me, "Dr. A. Jacobi, 20 Howard Street."

On a November evening in 1857 I started in quest of my contributor. As I had never heard of "Howard Street," Dr. Noeggerath gave me minute directions, but even then it was only through the good offices of an old gentleman whom I met at Broadway and Grand Street, that I finally got the right bearings. Howard Street seemed to be a kind of *Cul-de-Sac* of Broadway and house No. 20, as it now rises in my memory, appeared to have been brought from Holland by an early Dutch settler of New Amsterdam. I remember with what a sense of relief I read on a very modest tin sign the now familiar name, "Dr. A. Jacobi."

My rap on the door was answered by a short, thick-set, shock-headed young man, whose abrupt manner and scholarly appearance satisfied me that I was in the immediate presence of the object of my quite prolonged search. But what a contrast did his personality present to the slender figure, pale and intellectual face, thin light beard and hair, and gentle manners of Noeggerath! By his command rather than invitation I entered the office, which, though meagerly furnished, had a cozy appearance and that peculiar combination of delicious dissecting-room odors with which I was so familiar, and which made me feel quite "at home."

Realizing that I had met a man of action and not of words, a pediatric Archimedes whose thought was, "Give me a fulcrum on which to rest and I will move the

earth," I at once announced the subject of my errand, and was delighted at the immediate and favorable response which it received. It was arranged that he would prepare a paper for the *Journal*, that appeared every two months, which should contain a resumé of articles on the diseases of children appearing in current foreign medical periodicals. The first article was published in the issue of the *Journal* for January, 1858, under the title, "Report on the Progress of Infantile Pathology and Therapeutics." Thereafter these reports continued to form an important feature of that periodical until it was discontinued.

I did not again visit No. 20 Howard Street, but often met Dr. Jacobi of an evening at Dr. Noeggerath's office, No. 50 Amity Street, where I also usually found their boon companion, Mr. Carl Schurz. These evening entertainments were very enjoyable owing to the flow of wit and beer, and the quality of the cheese, bread and saurkraut.

At the time of which I write "Pediatrics," as a specialty, was unknown in this country, and even the title would not have been recognized by more than one physician in a thousand, taken at large. The only native work on "The Diseases of Children" was by Dr. James Stewart, a native of this city and founder of the Northern Dispensary and the Nursery and Child's Hospital. His work first published in 1841 was very popular and passed through several editions. It was succeeded in popularity by the classical treatise of Dr. Charles West of London in 1851. The occasion, therefore, for the periodical publication of Dr. Jacobi's well-prepared digest of German pediatric literature, was very timely. From my then point of view as an editor, familiar with current serial medical literature, I was of the opinion that these contributions awakened an interest in the diseases of children which in these later days has given us the well defined specialty of "Pediatrics."

But whatever credit may be due Dr. Jacobi for this initial work, there is no doubt that during the intervening half century he has by his writings, lectures, and public utterances, been a powerful and aggressive force in advancing to its present exalted position scientific pediatrics. While Dr. Jacobi has always been in the van of progress, he has been conservative in practice, as appears in his admirable paper "Non Nocere," which contains many useful suggestions to the modern surgeon. But Dr. Jacobi's conservatism in practice was never carried to the extreme of rejecting drug medication as is seen in his paper, "Nihilism and Drugs," in which Dr. Holmes and his followers are unmercifully pilloried. Indeed, elder practitioners who read this paper are reminded of the old-fashioned "Shot Gun" prescription, with its ten to fifteen ingredients, which the practitioner of half a century ago administered in the belief, and not without ample experience, that it was sure to kill something.

It is my sincere hope that in passing the eightieth decade-stone, Dr. Jacobi may have the experience of Victor Hugo, who states that on his seventieth birthday he suffered from an intense depression which continued more or less until he reached his eightieth birthday when the gloom suddenly lifted and life resumed all its interest and delight. Reflecting upon this singular psychological phenomenon he came to the conclusion that at seventy he entered upon the old age of youth, but at eighty he entered upon the youth of old age.

As I am somewhat the senior of Dr. Jacobi and reached the lofty summit to which he has now attained in advance of him, I am reminded of the incident in the lives of Whittier and Holmes. Whittier was the elder and when he celebrated his eightieth birthday, Holmes sent him a humorous poem in which he asked Whittier what was the outlook from that serene height. Whittier replied in a poem urging Holmes to make haste to reach that summit as the outlook for the rest of the journey was most encouraging; there would be no more hill-climbing as the path is all of the way down-grade to the river.

I predict of our venerable guest that having escaped

euthanasia at the hands of the anæstheticist at the age of sixty, and having safely passed the allotted limit of life at three score years and ten, and now having by reason of strength attained four score years, he will glide safely through the eighties into the nineties, and thence, with these last words of Henry Irving on his lips,

"INTO THY HANDS, O LORD."

Very truly yours,  
STEPHEN SMITH.

### NOTICE.

#### *To the Medical Profession:*

A gentleman of means, has a member of his family afflicted with progressive muscular atrophy, the diagnosis having been with certainty established after consultation with some of the highest neurological authorities of New York City and various cities of Europe.

These physicians are unanimously of the opinion that the case is incurable, inasmuch as up to the present there has been published no form of treatment or medication which is known to have positively cured or arrested the inroads of this malady.

This gentleman wishes to spare no effort to bring relief. He believes that perhaps somewhere, some physician may have successfully hit upon some method of curing a case of progressive muscular atrophy, but who through his inability to corroborate his results, owing to rarity of cases or through modesty, or for fear of being discredited, has failed to publish his case. This gentleman's idea is to try and bring this record to the surface by making an appeal to the profession through this journal.

The case itself presents the characteristic picture and is typical of progressive muscular atrophy in every particular. The patient is 50 years old, married, in excellent general health. About one and one-half years ago the disease made its appearance in the left hand, progressed, and within a few months involved the right hand. Its progress since has been very slow. The family of this patient wishes to announce that any physician who supplies a complete history and detailed description of the method of treatment of any case of progressive muscular atrophy he may have successfully treated, the trial of which leads to the cure or arrest of the disease in their relative, will be rewarded by a liberal cash prize.

Requests for further particulars and replies should be addressed to "Enquirer," care of this Journal.

### MEDICAL SOCIETY OF THE STATE OF NEW YORK.

The President, Dr. Charles Jewett, has appointed the following committee to consider Dr. Stover's resolution regarding Nurses' Training Schools:

Drs. Charles Stover, Amsterdam, Chairman; J. L. Heffron, Syracuse; Egbert LeFevre, New York; Alexander Lambert, New York, and Roswell Park, Buffalo.

Dr. Charles Jewett, President, has appointed Dr. Egbert LeFevre delegate to the Council on Medical Education of the American Medical Association.

#### ERRATA.

On page 166 of the March issue of the JOURNAL, 25th line from bottom of first column, "Section 2" should read "Section 3."

### COUNTY SOCIETIES.

#### MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

STATED MEETING, MONDAY, FEBRUARY 28, 1910, AT THE  
NEW YORK ACADEMY OF MEDICINE.

The following preambles and resolutions were unanimously passed:

WHEREAS, There has been introduced in the Legislature Senate Bill No. 278 and Assembly Bill No. 385,

entitled "An Act to amend the Education Law in relation to preventing cruelty by conferring upon the Board of Regents of the University of the State of New York the power of supervision of experiments on living animals."

This proposed law is unnecessary as the present law, which limits animal experimentation to incorporated institutions, is sufficient for all practical purposes. We consider these bills an attempt to enact an undesirable piece of legislation as it tends to hinder trained workers in scientific research in physiology, pathology, preventive and curative medicines, all of which are in the interest of humanity and of the individual and public health. The legally qualified workers in animal experimentation under the present law in this State, are worthy of every confidence and trust with the lives of the animals to be experimented upon as they are with our lives and the lives of our children. Therefore,

*Be it Resolved*, That the Medical Society of the County of New York at its stated meeting, February 28, 1910, records its protest against the enactment of these bills, and respectfully requests the members of the Legislature in the interests of humanity to secure their defeat, And also,

*Be it Resolved*, That a copy of these resolutions be sent to each member of the Senate and Assembly and to the Governor of the State.

WHEREAS, The State has acquired a site known as Letchworth Village, Rockland County, State of New York, for the custodial care of its feeble-minded and epileptic dependents. And,

WHEREAS, The present State institutions for such persons are overcrowded, and have long waiting lists, there being in New York County over one thousand such cases waiting to be transferred to the care of Letchworth Village. And,

WHEREAS, The Assembly has recently passed Assemblyman Merritt's Bill No. 150, appropriating \$583,000 for constructive purposes in Letchworth Village.

*Be it Resolved*, That the Medical Society of the County of New York at its stated meeting in February, 1910, approves of Senator Hill's Bill No. 102, which appropriates \$583,000 for buildings and other constructive work in the said Letchworth Village, Rockland County, New York.

*Resolved*, That copies of these resolutions be sent to the Governor and to each member of the Senate.

This action of the County Society may be taken as voicing the opinion of the medical profession of the County of New York in that the resolutions were carefully considered and indorsed by the Committee on Legislation, and that the County Society represents a membership of 2,400 physicians in active practice.

Respectfully,

E. ELIOT HARRIS, *Chairman*,  
Committee on Legislation.

#### RICHMOND COUNTY MEDICAL SOCIETY.

REGULAR MEETING, MARCH 9, 1910, AT STATEN ISLAND  
ACADEMY.

"Diagnosis of Hip Disease and Its Modern Treatment," S. Epstein, New York.

#### SPECIAL MEETING, MARCH 18, 1910.

As Mr. Bayne, representing the County of Richmond in the Senate at Albany, had introduced with Mr. Goodspeed in the Assembly a bill to establish a commission to inquire into the extent and nature of the practice in this State of experimentation on living animals . . . and for the proper protection of scientific experiments without danger and unnecessary cruelty, etc., it was deemed advisable to hold a special meeting of the society and protest in no uncertain terms against this action of their senator. After free discussion the following resolutions were unanimously passed:

"WHEREAS, The Anti-Vivisection Society has been en-

deavoring continuously for several years, without success, to prove that cruelty is practiced in connection with animal experimentation, and the public utterances of some of the leaders among the anti-vivisectionists show that they would annul the methods of research that have so greatly contributed to the advancement of the science and practice of medicine; and

"WHEREAS, These societies have failed in their efforts to convince several legislative committees of the validity of their charges, be it

"Resolved, By the Richmond County Medical Society, that they express their complete disapprobation of the proposed bill, the passage of which is not justified by any existing abuses and would be an unwarrantable charge on the public finances and only serve to encourage an agitation that may become a serious menace to the State, and

"Resolved, That copies of this resolution be forwarded to each member of the Legislature of the State of New York."

#### MEDICAL SOCIETY OF THE COUNTY OF ERIE.

REGULAR MEETING, FEBRUARY 21, 1910, AT BUFFALO.

The meeting was called to order by the President, Grover W. Wende.

On motion, the reading of the minutes of the last regular meeting was dispensed with, inasmuch as they had been published in full in the *Buffalo Medical Journal*.

The minutes of the council meetings held January 7th and 10th, and February 7th, 12th and 21st, 1910, were read and, on motion, approved.

The President called attention to the fact that forty-two members had been elected at the first meeting of this year. The announcement was received with applause.

Dr. Wall moved that Dr. A. T. Bull be elected to honorary membership. Motion was adopted, but, under the rules, it must lay on the table until the next meeting when it may be taken up for permanent adoption.

Dr. Grant offered a resolution which was adopted, as follows:

WHEREAS, A certain spiritualist, claiming the right to give drugs, as the medium of a certain quack doctor deceased, through the "religious tenets of her church," as a defence in her trial before a recent term of the Supreme Court of Erie County indicted for illegally practicing medicine, and

WHEREAS, This defence resulted in a disagreement of the jury, and vitally affects the enforcement before the courts of the new medical law known as Article 8, Chapter 49, Sections 161 to 174 of the Public Health Law, therefore be it

Resolved, By the Medical Society of the County of Erie, in session at Buffalo this 21st day of February, 1910, that a copy of this resolution be forwarded to the Secretary of the Medical Society of the State of New York with a view of its subject matter being considered by the Committee on Legislation, to the end that the law be amended prohibiting any person, in practicing "the religious tenets of his or her church, from giving or prescribing drugs or the use of surgical instruments."

Dr. F. Park Lewis, Chairman of the Committee on Legislation, made a verbal report of the Committee's work, especially calling attention to the anti-vivisection bill now before the State Legislature.

He said that a resolution in opposition to this bill had been drawn and would be sent to the members of the Senate and Assembly from Erie County and also to the Chairman of the Judiciary Committee which had this bill in charge.

The President called upon Dr. Stockton to report upon the invitation to be extended, through the State Society, to the American Medical Association to meet in Buffalo in 1911. His report was favorable.

Dr. Cora B. Lattin presented an outline of the plan of the American Medical Association Women's Committee for the prosecution of public health work.

Dr. Wall moved that the report of Dr. Lattin be referred to the Committee on Publicity which is one of the committees the President is authorized to appoint. Carried.

Dr. McKee moved that the Entertainment Committee be authorized to draw upon the Treasurer for the amount of expense incurred in providing a collation and holding this meeting. Carried.

Dr. Lyon, who was on the program for a demonstration of lantern slides, gave way to Dr. Matthew D. Mann, who was to read the paper of the evening, and said that he would gladly give up his entire time to the discussion of Dr. Mann's paper, as it might otherwise come too late for a proper consideration of the important subject.

Dr. Mann read a paper on the "Division of Fees," which was followed by a very interesting discussion.

#### THE MEDICAL SOCIETY OF THE COUNTY OF CHEMUNG.

REGULAR MEETING, TUESDAY, MARCH 15, 1910, AT ELMIRA.

"Scarlet Fever," J. L. Herrick, Elmira.

"The Eye in General Practice," G. M. Case, Elmira.

"Puerperal Infection," L. D. Mottram, Elmira Heights.

#### MEDICAL SOCIETY OF THE COUNTY OF WESTCHESTER.

REGULAR MEETING, TUESDAY, MARCH 15, 1910, AT WHITE PLAINS.

"Therapeutics," S. A. Brown, New York.

"Pharmacy," G. D. Diekman, New York.

"N. F. Preparations," W. C. Anderson, Brooklyn.

"Purity and Quality of Drugs," W. Muir, Brooklyn.

A discussion followed by Drs. H. T. Kelly, W. S. Emerson, J. N. Martin, and Messrs. John Roemer, L. J. Schlesinger, and F. G. Koch.

#### MEDICAL SOCIETY OF THE COUNTY OF SCHENECTADY.

REGULAR MEETING, MARCH 16, 1910, AT SCHENECTADY.

"The Stools in Infancy," J. L. Morse, Boston, Mass.

#### MEDICAL SOCIETY OF THE COUNTY OF MONROE.

REGULAR MEETING, MARCH 15, 1910, AT ROCHESTER.

"Acute Middle-Ear Suppuration," B. A. Richards, Rochester.

"Some Practical Laboratory Tests," M. L. Casey, Rochester.

#### MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

REGULAR MEETING, WEDNESDAY, MARCH 16, 1910, AT ALBANY.

"Fracture of the Lower Jaw," LeR. S. Blatner, D.D.S.

"High Frequency Electricity in Treatment of Adenitis, Prostatitis and in Local Affections," W. G. Lewi, Albany.

"A Critical Analysis of a Series of Cases of Acute Intra-Peritoneal Infection," E. MacD. Stanton, Schenectady.

#### RENSELAER COUNTY MEDICAL SOCIETY.

REGULAR MEETING, TUESDAY, MARCH 8, 1910, AT TROY.

"Demonstration of Case of Transposition of Viscera," W. Davidson.

"Dementia Præcox," H. Elliott, Troy.

"Demonstration of Pathological Brain Specimens," W. Kirk, Jr., Troy.

## LEGISLATIVE NOTES.

According to a resolution passed at the meeting of the House of Delegates in Albany, January 24, 1910, the following bills have been introduced in the Legislature.

"An Act to repeal section 1 of chapter 237, of the Laws of 1819, entitled 'An Act further to amend an Act to incorporate medical societies, for the purpose of regulating the practice of physic and surgery in this State.'"

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Section 1 of chapter 237 of the Laws of 1819, is hereby repealed.

Section 2. This Act shall take effect immediately. Printed No. 568. Int. 530. In Senate March 10, 1910. Introduced by Mr. Agnew; read twice and ordered printed, and when printed to be committed to the Committee on the Judiciary.

The section repealed by this Act is as follows:

"That it shall and may be lawful for each medical society in this State to cause to be raised and collected from each practicing physician or surgeon residing in the County or Counties where such society is by law established, a sum not exceeding one dollar in any one year; which sum when collected shall be a part of the fund of said society, to be applied as directed by the seventeenth section of the Act entitled, 'An Act to incorporate medical societies for the purpose of regulating the practice of physic and surgery in this State,' passed April 10, 1813."

"An Act to repeal section 7 of chapter 26 of the Laws of 1839, entitled 'An Act to incorporate the Albany Medical College.'"

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Section 7 of chapter 26, of the Laws of 1839, is hereby repealed.

Section 2. This Act shall take effect immediately. Printed No. 569. Int. 531. In Senate, March 10, 1910. Introduced by Mr. Agnew—read twice and ordered printed, and when printed to be committed to the Committee on the Judiciary.

The section repealed by this Act is as follows:

"The medical faculty of the college hereby incorporated (Albany Medical College) are authorized to appoint a delegate to represent them in the State's medical society, with all the powers and privileges which delegates from the respective medical societies of this State possess."

"An Act to repeal section 6 of chapter 206 of the Laws of 1818, entitled 'An Act to amend an Act, entitled, An Act to incorporate medical societies,' for the purpose of regulating the practice of physic and surgery in this State."

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Section 6 of chapter 206 of the Laws of 1818 is hereby repealed.

Section 2. This Act shall take effect immediately. Printed No. 570. Int. 532. In Senate, March 10, 1910. Introduced by Mr. Agnew—read twice and ordered printed, and when printed to be committed to the Committee on the Judiciary.

The section repealed by this Act is as follows:

"That each of the colleges of medicine in this State may elect a delegate to represent their colleges, respectively, in the Medical Society of the State, who shall be entitled to all the privileges, and subject to the same regulations, as the delegates from the County medical societies."

## BILLS INTRODUCED IN THE LEGISLATURE.

February 21 to March 22, 1910.

An Act to amend section 2016 of the Code of Civil

Procedure and adding a new section, 2016-a, relative to the issuance of writs of habeas corpus or certiorari in behalf of insane persons in State hospitals. By Mr. J. S. Phillips. To Codes Committee. Printed No. 739. Int. 671.

An Act to amend the General Business Law, by adding a new section, 5-a, relative to bottles and jars for the sale of milk and cream. By Mr. Murray. To General Laws Committee. March 10th. Substitute bill reported and recommitted. March 17th. Reported. Printed Nos. 766, 1135. Int. 690.

An Act to amend section 256 of the State Charities Law, relative to the eligibility of persons for admission as inmates of the Woman's Relief Corps Home. By Mr. Shepardson. To Judiciary Committee. Senate. Rec. No. 151. Printed Nos. 784, 1009. Int. 700.

An Act to legalize the proceedings of the electors of the Village of Croghan, Lewis County, relative to the submission and adoption of propositions to establish a system of water-works for the said village. By Mr. Boshart. To Villages Committee. In Senate. Rec. No. 167. To Judiciary Committee. Printed No. 786. Int. 702.

An Act to amend section 324 of the Public Health Law, relative to disinfection by public authorities. By Mr. Macdonald. To Public Health Committee. (Same as S. 382.) Printed No. 803. Int. 716.

An Act to amend section 99 of the Agricultural Law, relative to the appraisal of diseased animals, by providing that the appraisal value of each bovine animal shall not exceed \$125. By Mr. Howard. To Agriculture Committee. March 17th. Reported amended. Printed Nos. 842, 1295. Int. 743.

An Act to amend section 1750 of the Penal Law, relative to the sale of tainted food taken from cold storage. By Mr. Hearn. To Codes Committee. Printed No. 846. Int. 747.

An Act to amend section 1746 of the Penal Law, relative to the sale of cocaine and eucaïne. By Mr. A. E. Smith. To Codes Committee. Printed No. 866. Int. 760.

An Act to amend the Greater New York Charter by adding a new section, 1083-a, relative to furnishing free spectacles or eyeglasses to school children. By Mr. A. J. Levy. To Cities Committee. Printed No. 871. Int. 765.

An Act appropriating \$300,000 for the construction of the Mohansic State Hospital. By Mr. Merritt. To Ways and Means Committee. Printed No. 893. Int. 781.

An Act to establish a State industrial farm colony for the detention, humane discipline, instruction and reformation of male adults committed thereto as tramps or as vagrants, and appropriating \$75,000 therefor. By Mr. Merritt. To Ways and Means Committee. Printed No. 949. Int. 816.

An Act to amend the Greater New York Charter, by adding a new section, 1069-a, relative to baths in school houses. By Mr. Weiland. To Cities Committee. Printed No. 954. Int. 821.

An Act to amend subdivision 2 of section 30 of the Agricultural Law, relative to the definition of adulterated milk. By Mr. Baumes. To Agriculture Committee. (Same as S. 485.) Printed No. 967. Int. 834.

An Act to provide for free hospital boats or barges for the city of New York after June 1, 1910, to be used during the summer months of each year for the purpose of treating, without cost to them, sick mothers and children. By Mr. Farrell. To Cities Committee. (Same as S. 511.) Printed No. 979. Int. 838.

An Act to amend section 29 of the Liquor Tax Law, by providing that liquors shall not be sold to any patient affected with tuberculosis in any public camp, colony or hospital, except upon prescription from a physician. By Mr. Green. To Excise Committee. (Same as S. 490.) Printed No. 981. Int. 840.

An Act to amend section 188 of the Penal Law, relative to selling, offering for sale or receiving horses or



- other animals which by reason of disease are unfitted for work. By Mr. Ward. To Codes Committee. (Same as S. 409.) Printed Nos. 1000, 1354. Int. 859.
- An Act to amend the Penal Law, by adding two new sections, 1746-a and 1746-b, relative to the sale of cocaine. By Mr. Donovan. To Codes Committee. Printed No. 1001. Int. 860.
- An Act to amend the Greater New York Charter by adding a new section, 905-a, relative to exemption of hospitals from assessments for public improvements in the city of New York. By Mr. Gerken. To Cities Committee. Printed No. 1024. Int. 872.
- An Act to amend section 692 of the Greater New York Charter by adding a new subdivision, 12, relative to ambulance surgeons. By Mr. Spielberg. To Cities Committee. Printed No. 1036. Int. 887.
- An Act to amend chapter 410, Laws of 1882, relative to compensation of coroners' juries in the city of New York, and providing for the payment thereof. By Mr. Spielberg. To Cities Committee. Printed No. 1037. Int. 888.
- An Act providing that all patients residing in New York City who are admitted for treatment to Bellevue and allied hospitals, shall be admitted free of all charges, and if the patients have money in their possession none of it shall be taken from them and charged for treatment. By Mr. Spielberg. To Cities Committee. Printed No. 1087. Int. 918.
- An Act to amend chapter 88, Laws of 1873, relative to the board of trustees of the Faxon Hospital in the city of Utica. By Mr. Manley. To Judiciary Committee. (Same as S. 519.) Printed No. 1095. Int. 926. Passed.
- An Act to amend chapter 13 of the Greater New York Charter by repealing title 2 and adding a new title, 2, creating a department of public hospitals for the city of New York. By Mr. Lee. To Cities Committee. (Same as S. 554.) Printed No. 1102. Int. 933.
- An Act to repeal title 1 of chapter 13, and adding a new title, 1, to the Greater New York Charter, relative to the department of public charities. By Mr. Green. To Cities Committee. Printed No. 1110. Int. 941.
- An Act to amend the Education Law, by adding a new section, 1130, relative to the establishment of a State school of sanitary science and public health at Cornell University, and appropriating \$10,000 therefor. By Mr. Whitney. To Ways and Means Committee. (Same as S. 501.) Printed Nos. 1144, 1293. Int. 958.
- An Act to amend section 17 of the General City Law, relative to the operation of crematories for the disposal of garbage. By Mr. Lee. To Cities Committee. (Same as S. 526.) Printed No. 1147. Int. 961.
- An Act to amend section 195 of the Public Health Law, relative to the State Board of Dental Examiners. By Mr. Stivers. To Public Health Committee. (Same as S. 568.) Printed No. 1158. Int. 972.
- An Act relating to cold storage and refrigerating warehouses and places and the sale or disposition of food kept or preserved therein. By Mr. Ebbets. To Public Health Committee. Printed No. 1184. Int. 988.
- An Act to amend sections 290, 291, 292, 293, 294, 295 and 297 of the Public Health Law, and adding a new section, 299, relative to the practice of undertaking and embalming and the licensing of undertakers and embalmers. By Mr. Wood. To Public Health Committee. (Same as S. 537.) Printed No. 1219. Int. 1017.
- An Act to amend the charter of the city of Plattsburg, relative to city water-works. By Mr. Trombly. To Cities Committee. Printed No. 1222. Int. 1020.
- An Act to legalize the authorization of an issue of \$50,000 of bonds of the city of Plattsburg for improving its water supply. By Mr. Trombly. To Cities Committee. Printed No. 1223. Int. 1021.
- An Act to amend section 22 of the Public Health Law, relative to vital statistics. By Mr. Garfein. To Public Health Committee. Printed No. 1255. Int. 1031.
- An Act to establish a commission to inquire into the extent and nature of the practice in this State of experimentation on living animals, together with the condition of the laws of the State relative to the proper protection of scientific experiments without danger or unnecessary cruelty, and appropriating \$5,000 therefor. By Mr. Goodspeed. To Ways and Means Committee. (Same as S. 623.) Printed No. 1257. Int. 1033.
- An Act making additional appropriations for Letchworth Village. By Mr. Merritt. To Ways and Means Committee. Printed No. 1262. Int. 1038.
- An Act to amend sections 76, 77 and 84 of the Public Health Law and adding two new sections, 76-a and 76-b, relative to the discharge of sewage and manufacturing wastes into waters of the State. By Mr. Wood. To Public Health Committee. (Same as S. 602.) Printed No. 1263. Int. 1039.
- An Act making appropriations for Letchworth Village. By Mr. Merritt. To Ways and Means Committee. Printed No. 1264. Int. 1040.
- An Act to repeal sections 310 and 311 of the Public Health Law, relative to vaccination of school children. By Mr. Baumes. To Public Health Committee. (Same as S. 356.) Printed No. 1271. Int. 1047.
- An Act to amend sections 230, 231, 233, 234, 235, 237, 241, 242, 243 and 244, and repealing section 245 of the Town Law, relative to the establishment and maintenance of sewer systems outside of incorporated cities and villages. By Mr. Thompson. To Internal Affairs Committee. (Same as S. 628.) Printed No. 1280. Int. 1053.
- An Act to amend section 1769 of chapter 410, Laws of 1882, relative to coroners' physicians in Queens and Brooklyn. By Mr. Gore. To Cities Committee. Printed No. 1304. Int. 1059.
- An Act to amend the Greater New York Charter by adding a new section, 1542-a, relative to the powers of the Board of Health, the board of trustees of Bellevue and allied hospitals, the commissioner of public charities and the commissioner of correction as to medical care of physicians and nurses. By Mr. Raldiris. To Cities Committee. Printed No. 1333. Int. 1093.
- An Act to amend the Agricultural Law, in relation to branding or labeling cheese. By Mr. Boshart. To Agriculture Committee. Printed No. 1369. Int. 1104.

IN SENATE.

- An Act to amend section 188 of the Penal Law, relative to selling, offering for sale or receiving horses or other animals which, by reason of disease, are unfitted for work. By Mr. Bayne. To Codes Committee. (Same as A. 859.) Printed No. 423. Int. 409.
- An Act to amend sections 49 and 50 of the State Charities Law, relative to excepting certain State institutions from its provisions in respect to repairs and plans and specifications for erection of buildings. By Mr. Davis. To Finance Committee. Printed No. 425. Int. 411.
- An Act to exempt the real estate of hospitals in the city of New York, as now constituted, from assessments for local improvements. By Mr. Gledhill. To Cities Committee. Printed No. 485. Int. 462.
- An Act to amend subdivision 2 of section 30 of the Agricultural Law, relative to the definition of adulterated milk. By Mr. Rose. To Agriculture Committee. (Same as A. 834.) Printed No. 510. Int. 485.
- An Act to amend section 29 of the Liquor Tax Law by providing that liquors shall not be sold to any patient affected with tuberculosis, in a public camp, colony or hospital, except upon a written prescription from a physician. By Mr. Burlingame. To Taxation and Retrenchment Committee. (Same as A. 840.) Printed No. 521. Int. 490.
- An Act to amend the Education Law by adding a new section, 1130, relative to the establishment of a State

- school of sanitary science and public health at Cornell University and appropriating \$10,000 therefor. By Mr. Cobb. To Finance Committee. (Same as A. 958.) Printed No. 531. Int. 501.
- An Act to provide for free hospital barges for the city of New York after June 1, 1910, to be used during the summer months of each year for the purpose of treating, without cost to them, sick mothers and children. By Mr. Cronin. To Cities Committee. (Same as A. 838.) Printed No. 545. Int. 511.
- An Act to amend chapter 88, Laws of 1875, relative to the board of trustees of the Faxon Hospital in the city of Utica. By Mr. Davenport. To Judiciary Committee. (Same as A. 926.) Printed No. 553. Int. 519.
- An Act to amend section 17 of the General City Law, relative to the operation of crematories for the disposal of garbage. By Mr. Burlingame. To Cities Committee. (Same as A. 961.) Printed No. 564. Int. 526.
- An Act to repeal section 1 of chapter 237, Laws of 1819, amending the Act incorporating medical societies, relative to collections. By Mr. Agnew. To Judiciary Committee. Printed No. 568. Int. 530.
- An Act to repeal section 7 of chapter 26, Laws of 1839, relative to representation of the Albany Medical College in the State Medical Society. By Mr. Agnew. To Judiciary Committee. Printed No. 569. Int. 531.
- An Act to repeal section 6 of chapter 206, Laws of 1818, relative to representation of medical societies in the State Medical Society. By Mr. Agnew. To Judiciary Committee. Printed No. 570. Int. 532.
- An Act to amend sections 290, 291, 292, 293, 294, 295 and 297 of the Public Health Law, and adding a new section, 299, relative to the practice of undertaking and embalming and the licensing of undertakers and embalmers. By Mr. Witter. To Public Health Committee. (Same as A. 1017.) Printed No. 575. Int. 537.
- An Act to repeal title 1 of chapter 13, and adding a new title, 1, to the Greater New York Charter, relative to the department of public charities. By Mr. Alt. To Cities Committee. (Same as A. 941.) Printed No. 587. Int. 550.
- An Act to amend chapter 13 of the Greater New York Charter, by repealing title 2 and adding a new title, 2, creating a department of public hospitals for the city of New York. By Mr. Gledhill. To Cities Committee. (Same as A. 933.) Printed No. 588. Int. 554.
- An Act to amend section 195 of the Public Health Law, relative to the State Board of Dental Examiners. By Mr. Rose. To Public Health Committee. (Same as A. 972.) Printed No. 606. Int. 568.
- An Act to amend sections 76, 77 and 84, of the Public Health Law, and adding two new sections, 76-a and 76-b, relative to the discharge of sewage and manufacturing wastes into waters of the State. By Mr. Mackenzie. To Public Health Committee. (Same as A. 1039.) Printed No. 640. Int. 602.
- An Act to amend the Village Law, by adding a new section, 90-a, relative to the adoption and endorsement of building and sanitary codes in villages of the first and second class. By Mr. Hubbs. To Villages Committee. (Same as A. 163.) Printed No. 656. Int. 612.
- An Act to establish a commission to inquire into the extent and nature of the practice in this State of experimentation on living animals, together with the condition of the laws of the State relative to the proper protection of scientific experiments without danger or unnecessary cruelty, and appropriating \$5,000 therefor. By Mr. Bayne. To Finance Committee. (Same as A. 1033.) Printed No. 667. Int. 623.
- An Act to amend sections 230, 231, 233, 234, 235, 237, 241, 242, 243 and 244, and repealing section 245 of the Town Law, relative to the establishment and maintenance of sewer systems outside of incorporated cities and villages. By Mr. Hubbs. To Internal Affairs Committee. (Same as A. 1053.) Printed No. 672. Int. 628.
- An Act to authorize the issuance and sale of sewer bonds of the city of Fulton at an increased rate of interest and to legalize all proceedings relating to said bonds. By Mr. Cobb. To Cities Committee. (Same as A. 1091.) Printed No. 702. Int. 652.
- An Act to legalize the proceedings for the sale and issuance of the bonds of the village of Black River, in the amount of \$27,000 to raise funds for defraying the cost of establishing a water system. By Mr. Cobb. To Judiciary Committee. Printed No. 704. Int. 654.
- An Act to amend the Greater New York Charter, relative to powers of the board of health, the board of trustees of Bellevue and allied hospitals, the commissioner of public charities and the commissioner of correction. By Mr. Cullen. To Committee on Affairs of Cities. Printed No. 709. Int. 657.

## BOOKS RECEIVED.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

**DISEASES OF THE STOMACH AND INTESTINES.** By ROBERT COLEMAN KEMP, M.D., Professor of Gastro-intestinal Diseases in the New York School of Clinical Medicine; Visiting Gastro-enterologist to the New York Red Cross Hospital; Gastrologist to the West Side German Dispensary; Consulting Physician, Gastro-intestinal Diseases, to the Manhattan State Hospital; Member American Medical Association. With 280 illustrations, some in colors. Philadelphia and London. W. B. Saunders Company. 1910. Price, cloth, \$6.00.

**A SYSTEM OF OPERATIVE SURGERY.** By various authors. Edited by F. F. BURGHARD, M.S., F.R.C.S., London, England. Teacher of Operative Surgery in King's College, London; Surgeon to King's College Hospital; Senior Surgeon to the Children's Hospital, Paddington Green. In four volumes. Vol. III. Operations upon the ductless glands, operations upon the bile passages and the pancreas, operations upon the central nervous system, operations upon the genito-urinary organs, operations upon the thorax and its contents. London. Henry Frowde, Oxford University Press. Hodder & Stoughton, Warwick Square, E. C. 1909.

**THE CONQUEST OF CONSUMPTION.** By WOODS HUTCHINSON, A.M., M.D., Author of "Studies in Human and Comparative Pathology," "Instinct and Health," "Preventable Diseases," etc., Clinical Professor of Medicine, New York Polyclinic, etc. Boston and New York. Houghton, Mifflin Company. The Riverside Press, Cambridge. 1910.

**INTERNATIONAL CLINICS.** A quarterly of illustrated clinical lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world. Edited by HENRY W. CATTELL, A.M., M.D., Philadelphia, U. S. A., with the collaboration of WM. OSLER, M.D., Oxford; JOHN H. MUSSER, M.D., Philadelphia; A. MCPHEDRAN, M.D., Toronto; FRANK BILLINGS, M.D., Chicago; CHAS. H. MAYO, M.D., Rochester; THOS. H. ROTCH, M.D., Boston; JOHN G. CLARK, M.D., Philadelphia; JAMES J. WALSH, M.D., New York; J. W. BALLANTYNE, M.D., Edinburgh; JOHN HAROLD, M.D., London; RICHARD KRETZ, M.D., Vienna. With regular correspondents in Montreal, London, Paris, Berlin, Vienna, Leipsic, Brussels and

Carlsbad. Volume I. Twentieth Series. 1910. Philadelphia and London. J. B. Lippincott Company. 1910.

**POCKET THERAPEUTICS AND DOSE-BOOK.** With classification and explanation of the action of medicines; doses in Troy Weight with Metric Equivalents; Genitive endings of all medicines and preparations given in italics; index of common and pharmaceutical names; index of diseases with remedies; tables of solubilities; illustrations and examples in prescription writing; poisons, their symptoms, antidotes, and treatment; incompatibles and antagonists; useful hints to the prescriber. By MORSE STEWART, JR., B.A., M.D. Fourth edition. Rewritten. Philadelphia and London. W. B. Saunders Company. 1910. Price, cloth, \$1.00 net.

## BOOK REVIEWS.

**PRINCIPLES AND PRACTICE OF PHYSICAL DIAGNOSIS.** By JOHN C. DACOSTA, JR., M.D. Philadelphia and London. W. B. Saunders Co., 1908. 548 pp. 8vo. Price, cloth, \$3.50 net.

This book from the pen of a noted teacher adds a well-systematized and up-to-date work on physical diagnosis to an already long list. Illustrations are introduced only when they distinctly aid in explanation. The clear style of the author renders the subject thoroughly readable and interesting. Diagnostic procedures are definitely described and the value of each made plain to the student. Differentiation is concisely treated and the reader gains the information desired in short space.

The several anatomic regions are fully discussed and each organ and its diseases thoroughly considered. There is an exhaustive index.

**TEXT-BOOK OF MEDICAL AND PHARMACEUTICAL CHEMISTRY.** By ELIAS H. BARTLEY, B.S., M.D., Ph.G., Professor of Chemistry, Toxicology and Pediatrics in Long Island College Hospital. Seventh Revised Edition, with ninety illustrations. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street. 1909. Price, \$3.00 net.

This work by Professor Bartley has been favorably known for a number of years, since it embodies in compact, yet comprehensive form, all the essential features of physics and chemistry of importance to the medical and pharmaceutical student. The subject matter is divided into five parts: Part 1 is devoted to a discussion of Chemical Physics, Heat, Light, Electricity, Solution, Diffusion, Dialysis and Crystallography. Part 2 deals with Theoretical Chemistry, Part 3 with Inorganic and Part 4 with Organic Chemistry, while Part 5 serves as an introduction to Physiological Chemistry in its Application to Practical Medicine. In the revision of this text-book for the seventh edition but few changes have been found necessary in the general character and form of the book, and the spelling of chemical names used in former editions has been retained. The section devoted to proteins has been rewritten and made to conform with the nomenclature and classification recommended by the committees of the American Physiological Society and the Society of Biological Chemists. The temptation to increase the size of the volume beyond its 734 pages has been resisted. The eminently practical subdivision of the text and the very complete index enhance the value of the volume for ready reference.

**APPENDICITIS AND OTHER DISEASES OF THE VERMIFORM APPENDIX.** By HOWARD A. KELLY, M.D., Baltimore. J. B. Lippincott Company.

This book is an abridged edition of the volume published in 1905 written by Kelly and Hurdon, and is about two-thirds the size of the former edition. It is well illustrated by wood prints and many colored plates,

by such artists as Mr. Brödel and Miss Huntington. Chapter 1 gives a very thorough review of the history of the literature of the appendix, and makes very pleasant reading for one not already familiar with it. Chapters 2 and 3 give a detailed account of the anatomy and as much of the physiology as is known. Chapter 4 goes extensively into the bacteriology of appendicitis, and is followed by eighty pages on pathology. It is needless to add that the four chapters devoted to this cover the field very fully and satisfactorily. The chapters on etiology, clinical history, diagnosis and differential diagnosis are full and elaborate, and include a consideration of the leucocytosis of the disease; the complication with typhoid fever; the variations of the inflammation in youth and old age, and also a separate chapter on typhlitis.

The subject of treatment is considered under the headings, the relation of the general practitioner to appendicitis and its medical treatment; general considerations regarding the operation; and the operative treatment.

Under the latter the various incisions are considered and described, as well as the atypical operations for the removal of the appendix. A separate chapter is devoted to the consideration of peritonitis, and another to the various abscesses which are found in the appendicular region. Further chapters consider the relation of the diseases of the appendix to gynecological diseases; neoplasms and specific infections of the organ and the medico-legal aspects of appendicitis.

The volume consists of five hundred pages, and is written in the clear style so well known of the author. The illustrations are excellent and well picture the various conditions described. The volume is rather large and full for the student, but for the surgeon or general practitioner who desires to know all about this troublesome little organ and as a book for reference we certainly can recommend this volume. H. B. D.

**GONORRHEA, ITS DIAGNOSIS AND TREATMENT.** By FREDERICK BAUMANN, Ph.D., M.D. New York and London. D. Appleton & Company. 1908. xii, 206 pp., 8vo. Price, cloth, \$1.50, net.

This work is a concise digest of the writings of Oberlander and Kollman on the diagnosis and treatment of gonorrhoeal infections of the lower genito-urinary tract, with practical additions by the author.

The general practitioner and the student will find it a valuable work for the many practical suggestions which it contains, and the specialist will find it of value as a digest of the larger works of Oberlander and Kollman.

C. S. COCHRANE.

**PRACTICAL DIETETICS.** By W. GILMAN THOMPSON, M.D. Fourth enlarged, revised and re-written edition. Published by D. Appleton & Co.

The new edition of Thompson's Dietetics maintains the previous standard of excellence. The arrangement is excellent. The text clear and concise. It is probably on the whole as satisfactory as any book on this subject can be in the present state of our knowledge. Dealing as we must with questions concerning the digestion and utilization of food substances, the physiology of the alimentary tract under normal and pathological conditions, the arrangement of the diet is necessarily in somewhat an unsatisfactory state. Many of our dietetic ideas are dependent upon exploded or unfounded notions regarding the etiology of some of the disease entities. As an example may be cited the dietetic restrictions in such diseases as acute articular rheumatism, now believed by a large proportion of advanced clinicians to be an infectious disease and as such to have no other dietetic indications than any other such abnormality.

Again we find an amazing neglect of the question of quantitative dietetics. Overfeeding is discussed particularly as to its symptomatology, but little reference is made as to its clinical determination. Underfeeding, except in the form of acute starvation, is not even mentioned.

DUDLEY D. ROBERTS.

**DIET IN HEALTH AND DISEASE.** By FRIEDENWALD and RUHRAH. Third edition, thoroughly revised and enlarged. W. B. Saunders and Company. Price, cloth, \$4.00 net.

The new edition of this work is in many minor ways an improvement on the old, which justly met with a cordial reception. While it is claimed that the articles on milk and several other foods have been rewritten, no more than passing mention is found of the use of buttermilk and the sour milks as made by the action of the *Bacillus Bulgaricus*. The theories of Metchnikoff may in the course of time be shown to be without foundation, but the practical impetus given the use of sour milks and the many clinical reports as to its utility tend to make this the most important change or development in dietetics seen in recent years.

Of particular value, because in such works we ordinarily find but little concerning it, is an excellent discussion of the subject of institutional dietetics. Such a discussion might well be considered in a separate volume, but the authors have covered the more important points remarkably well. The number of specific diet lists used by the authors and clinicians of prominence throughout the world is larger than in any similar work.

DUDLEY ROBERTS.

**DISEASES OF INFANCY AND CHILDHOOD.** By HENRY ENOS TULEY, M.D. Published by Southern Medical Publishing Company.

The multiplication of volumes dealing with the diseases of children is evidence that the child is "coming into its own." The author of this volume has evidently made the endeavor to be practical, and in a measure he has succeeded. In this endeavor, however, there has crept in the mistake of enlarging upon some of the subjects (notably, "Feeding") at the expense of sufficient space for the elucidation of other equally important ones. There is, however, much to commend the work as a practical guide to the man in general practice.

There has not been that careful attention to proof-reading which should be expected in a work of such pretensions and, therefore, in addition to the incorrect heading of a chapter, there are many minor errors which could have been avoided. The illustrations are many, but we think that we detect the illustrations of other authors without any credit being given.

For the student who wishes a book for quick reference without any elaboration, except of the chapters on "Feeding," which are very full, this book must commend itself.

LE GRAND KER.

**STUDIES OF IMMUNITY.** By ROBERT MUIR, M.A., M.D., Professor of Pathology, University of Glasgow, in collaboration with CARL H. BROWNING, M.D., ALEXANDER R. FERGUSON, M.D., and WILLIAM B. M. MARTIN, M.B., Ch.B. London. Henry Frowde, Hodder & Stoughton, Oxford University Press, Warwick Square, E. C. 1909.

This book of more than two hundred pages contains an account of researches on immunity carried out in the Pathological Department of Glasgow University and previously published, for the most part, in several English medical magazines. The studies were conducted by Professor Muir in collaboration with several assistants and associates, and relate to certain important phenomena in connection with immune sera. Some notion of the scope of this work can be obtained from a partial list of the different chapters. Thus under the general subject of the properties of hæmolytic sera are considered: The properties of immune bodies, the properties of complements and their modifications, on the combining properties of complements, on complementoids, the toxic action of complements, the action of complements as agglutinin, etc. The properties of immune bodies are also discussed in detail, as is the nature of the hæmolytic receptors of the red corpuscles. Part II of the work relates to the properties of antiserum in relation to complement deviations and precipitin formation, and Part III deals with the antibacterial properties

of the serum with special reference to opsonic action and bactericidal effect.

The studies bring out not a few new facts of importance and they seek to establish important relations between the different properties manifested by immune sera. In view of the increasing practical use made of the phenomena of complement deviation (as in the Wassermann test for syphilis) and of the opsonification (in the employment of bacterial vaccines, etc.) the working out of the principles of the phenomena themselves is of high importance. The studies contained in this book constitute a substantial contribution to the subject.

SIMON FLEXUER.

## OBITUARY.

At a stated meeting of the medical staff of the Long Island State Hospital, held March 22, 1910, the following resolutions were adopted:

WHEREAS, It has pleased an All-wise Providence to take from our midst our beloved superintendent, Dr. Oliver Morse Dewing, who passed away after a week's illness of lobar pneumonia on March 15, 1910;

Resolved, That the medical profession has lost a valued member, the State Hospitals an able and efficient superintendent, the members of the staff a valued friend and colleague, and the patients under his supervision a sympathetic friend, whose genial good nature added much to their happiness and the betterment of their condition;

Resolved, That we desire to express to the family our sincere sympathy in this hour of sad bereavement, and

Resolved, That a copy of this resolution be sent to the family, also for publication in the medical journals, and that it be filed with the records of this hospital.

SPECIAL MEETING OF THE MEDICAL SOCIETY OF THE COUNTY OF BROOME.

It is with sadness and regret that we acknowledge the death of Dr. Chas. B. Richards, who was for many years a distinguished and honored member of this Society.

Resolved: That we have lost a member of the profession whose life was one of great purpose and lofty aims, of unusual purity and integrity of character, whose conduct was ever ethical and uplifting.

He was a man of great positiveness of thought and character, yet broad minded and generous both to his patient and his brother physician. He rendered distinguished services to his country in the Civil War. He rose to Brigade Surgeon.

He specialized in nervous and mental diseases and became distinguished as an alienist in this section of the State.

Resolved: That in his death the profession has lost one of its ablest members, one whom we delight to honor as a brother physician.

Resolved: That this community has lost one of its best and most exemplary citizens.

Resolved: That we unite and extend to his widow our earnest and sincere sympathy in her deep bereavement.

Resolved: That we send her a copy of these resolutions and cause them to be spread upon the records of this society—also that a copy of these resolutions be sent to the NEW YORK STATE JOURNAL OF MEDICINE and the Press of the city.

March 11, 1910.

LE ROY D. FARNHAM,  
JOHN M. FARRINGTON,  
C. W. GREENE,

Committee.

## DEATHS.

MARTIN AMADOR, M.D., Brooklyn, died March 13, 1910.

DANIEL E. BARRY, M.D., New York City, died March 13, 1910.

OLIVER M. DEWING, M.D., Brooklyn, died March 15, 1910.

JOSEPH W. EDDY, M.D., Oswego, died March 12, 1910.

ELISHA FENN, M.D., New York City, died March, 1910.

SAMUEL HOLMAN, M.D., Rochester, died March 4, 1910.

TOWNSEND A. WALKER, M.D., Corning, died March 10, 1910.





PHOTO BY ELLIAN D. GRIFFIN

*A. J. S. 1876.*

# NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

ALGERNON THOMAS BRISTOW, M.D., Editor  
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Vol. X.

MAY, 1910

No. 5

## EDITORIAL DEPARTMENT

### ABRAHAM JACOBI—A SKETCH.

IN the early part of the last century there lived at Hartum, a little village on the Weser a Jewish couple of humble extraction. The mother, a woman of energy and force, kept a small grocery and dry-goods store, and the father traded about the country from hamlet to hamlet buying here a cow and there a cow and calf. When there was a calf to be driven home a young lad of seven or eight went with him to help, and afterwards assisted in slaughtering it. The couple had no land of their own, but hired a plot of less than one acre to raise potatoes, and it was young Jacobi's part of the work in the summer time to go out and hoe up the hills. To help him along his mother gave him a stone jar filled with water and one German penny of the value of one-fifth of a cent to buy vinegar. This was the thing that sweetened his work, and besides having his vinegar and hot water he also had in his pocket a Latin Grammar, and in proportion as he studied his grammar the potatoes suffered, but never from too much hoeing.

He received his first education in the village school—reading, writing and arithmetic. There were two teachers. His first tutor was a young fellow who had prepared for the University, but was unable to enter because of the bankruptcy of his father, so he took to teaching the village school for a livelihood. His salary was the magnificent sum of \$30.00 a year on which he had to live, eat and drink, and cover his six feet of stature. When Jacobi was eight years old his teacher commenced to give private lessons, and took

the lad as his pupil because his mother insisted on it. The scholar was promising and ardent, the teacher generous and discerning, and so these extra lessons cost nothing. When he was eleven years old he was sent to the Gymnasium at Minden, through his mother's influence, the father yielding to her persuasion. His aptitude was such that he did two years' work in one. After a while, however, his father insisted on his changing from the Gymnasium to the Realschule, a sort of commercial high school. He was then twelve years old. He skipped a grade here and entered the first class, but his father finally got tired of paying the bills and sent him to an uncle, fifty miles south, who kept a small store, so there he went to be made a business man. One day a peasant came to the store for a yard or so of cloth. The boy was alone at the time. The amount of the bill was five silver groschen, but the man only paid him four, and the boy hadn't the courage to demand the missing groschen, and so he paid it out of the little store of 30 groschen which his mother gave him when he left home, for pocket money. These thirty groschen, by the way, were to last him during his stay with his uncle, perhaps a few years. After this episode, not unnaturally Jacobi concluded that he wasn't cut out for a business man, and after a business career of eleven days he trudged the fifty miles home, taking two days to make the trip.

He seems to have had a faculty of jumping over the heads of other people even when quite a boy, and rather flattered his father by beating the Mayor's son, so back he went to the Gymna-

sium, not in residence, however, but studying at home for economy's sake and tramping there once a week with his Latin and Greek papers for correction. After being two years in the Prima or first class, having performed his usual acrobatic feats with the classes and doing two years' work in one, in 1847 at the age of 17 he went to the University of Griefswald. At first he was not at all interested in medicine, but studied the oriental languages, Arabic and Hebrew, and came near being a "Dry as Dust Orientalist." The physical laboratories, however, attracted him and finally he commenced the study of anatomy and physiology under Sigmund Schultze.

The Revolution had broken out meanwhile, in 1848. There were plenty of revolutionary and socialistic teachers in the Gymnasium with whom he was brought in contact, and consequently he soon became a member of one or more of the students' societies whose object was to revolutionize the world and incidentally Prussia. Like the traditional German student of the middle ages, he packed his knapsack after he had learned what he wanted at Griefswald, and went to Goettingen to learn pathological anatomy. There he worked with Virchow, and Woehler. He remained in Goettingen a year, and finding the clinics poor, again shouldered his knapsack, and staff in hand went to Bonn, where he stayed a year and a half, from which University he finally received his diploma. Then he went to Berlin to pass his State examination, but meantime, the police had heard of his dealings with the revolutionary party, and gobbled him up. That was probably the only pie in which Jacobi ever burned his fingers. He had been librarian at Griefswald of books forbidden by the Government. He had kept these books in his own room and loaned them out to the students. One of the principal young men among the revolutionists at that time was a man who came from Heidelberg named Johannus Miguel. He was the leader. He claimed to be an Idealist, but withal he was very practical, for while the others were sent to jail he succeeded in staying outside of the prison walls.

When Jacobi left Goettingen his revolutionary activities did not cease, but he assisted in forming societies and getting up little underhanded conspiracies. In Cologne, he met the leaders of the Democracy, Freiligrath the poet, Karl Marx, and his bosom friend, Frederick Engels. Karl

Schurz was also one of his intimates. The revolution in Bonn soon faded out of existence. Some of the students of other universities died on the battle field and some were shot by the Prussians. Dr. Jacobi's name was found in the correspondence, so he was jailed with others to be tried for high treason and was sent to Cologne, where he cooled his heels and his temper for a year and a half behind the thick walls of a German fortress. From one quarter of a year to another his trial was postponed, but some less fortunate were imprisoned for five years, six years, seven years. Finally Jacobi was acquitted of high treason. He had spoken disrespectfully of the King and the government of Germany, however, and the Prussians couldn't stand that, so they convicted him of "lese majestat," and off he went to Minden to be imprisoned for six months. There were some ameliorations in this last term. He had books, writing materials, and during the last part of his confinement his cell was unlocked in the morning and he played at bowls in the fields, and went back at six o'clock in the evening to be locked up again. The jailer was his friend, and when the time for his release came, as he had heard that there was something still against Jacobi, he let him out early in the morning instead of in the evening, so he could escape. Jacobi was then twenty-three years old. He went over the mountains to see his mother, then escaped to Hamburg, from whence in ten or twelve days he took ship for England. He spoke book-English at that time. He had heard nothing of the revolutionary movements while in prison, but found in England many revolutionary emigrants, and as he was inclined to have his fingers in the next pie in spite of their burns, he wanted to stay in England and not go to America. After vacillating between London, Glasgow and Manchester, he finally decided to go to Manchester, where he stayed two months. During this time he had one patient who did not pay him, so he came to the conclusion that he wasn't wanted in Manchester. His borrowed money was gone, so he took his diploma under his arm, and went to Liverpool to look up an emigrant ship to try to get free transportation to America. He was fortunate enough to meet a ship owner who knew one of his revolutionary friends, Dunker by name. On account of the ship owner's friendship with this man he gave Dr. Jacobi a passage on the American ship "Trimountain," Captain Ray. He



made a very successful voyage, only forty-three days from Liverpool to Boston. There were some Dublin ladies on board and the attraction seems to have been mutual. Dr. Jacobi wanted to learn English from the Dublin ladies, and the Dublin ladies were willing to amuse themselves with Dr. Jacobi. They quizzed him finely, and got as good as they sent. They were very much astonished at the accuracy of his spelling, particularly when he put the final "n" on "solemn." There were some people on the ship from Andover, seminarians. They were very anxious for him to come to Andover and settle there, so he was evidently a favorite with more than the Dublin ladies. They wanted Dr. Jacobi to give lectures on German literature, but he wasn't much of a theologian, so he decided to go to Boston. There he met a German doctor by the name of Wesselhoft, who had adopted "a thing called homeopathy," in which he had become rich. Wesselhoft asked Jacobi to assist him. By this time there was little of the borrowed money left, perhaps a dollar or two, but with characteristic honesty and pluck he said "No, thank you. You are a homeopathist, and I am not," so they parted in peace. Then he went to the town of the witches, Salem, where there was another German doctor, who, however, was also a homeopath, but could not bewitch Jacobi to become his colleague, so back again to Boston he went and lived with a German friend from Goettingen who was editing a German paper. While living with this friend he learned zoölogy, and incidentally entomology, for the first night he couldn't sleep. He scratched and turned over and turned over and scratched until his outraged friend called out to him from the other room "What's the matter with you, why don't you go to sleep? It's nothing but a bed-bug." This was Jacobi's first introduction to entomology, a science which he says he has not pursued since. He fled to New York, and being still fond of politics and plots he had an indefinite idea of going to Washington, as he thought he might perhaps in his youthful enthusiasm, be able to compare the merits of an American jail with those in Germany, but he felt his empty pockets and stayed in New York. He wrote some articles on American history and papers on the history of Virginia. There were many of his old friends of the revolution of '48 living in New York at this time, and because of his trial he was well known to them, so that after all he got his start in America through his acquaintance with a Prussian jail. In a fortnight he had earned 25 cents. At first he charged 25 cents for an office visit and 50 cents for an outside visit, but he came to the conclusion that an office visit was worth more than 25 cents and so he raised it to 50 cents. His first office was in 20 Howard Street and consisted of one room in which he had his bed with a screen around it. He was there for one winter, and at least made a living. He usually made his dinner of apple pie and sugar

which he bought at the corner grocery. The first year of his practice he made \$973.25. For an obstetric case he charged \$10.00, but to those who could not afford that amount he charged only \$5.00. There were no trained nurses in those days, and for this he not only attended to the woman, but washed the baby and made calls for nine days in succession, and after a year vaccinated the baby. Finally he got as much as \$1.00 for a visit, and then he thought he was on the high road to riches. From Howard Street he went to 50 Forsyth Street where he remained for two years, then to Chrystie Street for two years more, when he went to 50 Amity Street. As he got more patients and became better acquainted with his families, if the case was not a very serious one he often used to stop at the cake box before going upstairs to the patient. From Amity Street he moved to 34th Street where he lived for over 30 years, and finally to his present location, 19 East 47th Street.

In 1875 he joined the Medical Society of the State of New York, became Vice-President in 1881, and President in 1882. During all this time he has been absent from but two meetings.

The history of Dr. Jacobi for the last century is the history of every movement for the advancement and elevation of the profession whether in college lecture room, in the halls of medical societies or legislative assemblies. By public example and private precept he has stood for every thing that was true and of good report in the science to which he has devoted the years of a noble life. Fifty years ago he established the first pediatric clinic and professorship in the old and forgotten New York Medical College in East Thirteenth Street. That ancient institution, Dr. Jacobi still bears in affectionate remembrance. The recollections of his long and brilliant services in the College of Physicians and Surgeons, as professor of pediatrics are cherished in the hearts of thousands of his students. His services to the hospitals of New York cannot be overestimated, but the little children of both rich and poor, the helpless, voiceless ones, what would they say could they but speak? "And they brought unto him also infants that he would touch them."

This half century and more he has sojourned with us, guide, philosopher and friend, to all who need him. Now the sky glows golden in the west and the evening shades draw nigh. The shadows lengthen on the mountains but beyond the mountain tops and the rolling tide lie the everlasting sunshine and summer skies. Not yet, oh not yet shall the Lady of the Lake ground the prow of her shallop on the sands for our Lancelot! We need his council, the inspiration of his presence and example yet, this many a year, but when at last he sets sail for the Islands of the Blest, may the ebbing tide bear him gently into the sunset as with shielded brow we watch him fading into the haze of immortality. A. T. B.

## Original Articles

## VACCINE THERAPY IN COLON BACILLUS INFECTION OF THE URINARY TRACT.\*

By FRANK BILLINGS, M.D.

CHICAGO.

COLON BACILLURIA occurs in fully 50 per cent. of all casts of bacteriuria. The condition may be unattended with perceptible effect, either local or systemic.

Patients may suffer from dysuria with frequent urination and the colon bacilluria may be the only recognized morbid condition. Usually the bladder irritation is ascribed to the hyperacid urine, but it may continue when the urine is rendered alkaline. That the colon infection is the chief cause of the bladder irritation is presumptively proved by the relief of all symptoms coincident with the disappearance of the bacteria from the urine.

Colon bacilluria may be present with recognizable morbid changes in the urinary tract, and the bacteria are either the cause or are closely related to the disease process.

The morbid anatomical change, probably, frequently pre-exists in the mucous membrane of some portion of the urinary tract. The urethra, prostate, ureter, kidney pelvis and kidney may be involved. A urinary calculus may pre-exist, and also may result from a colon bacilluria.

Colon urinary infection may be present with tuberculosis of the urinary tract and apparently aggravates the associated morbid anatomy, and intensifies the disturbance of the urinary apparatus and the general symptoms.

It may also rarely be present with and aggravate the local disturbance and general symptoms of gonococcus infection of the deeper urinary tract of pyogenic streptococcus and staphylococcus, proteus, influenza and typhoid bacillus and other bacterial infections of the bladder and kidney pelvis. Prostatitis, cystitis, ureteritis, pyelitis and pyelonephritis may occur with colon bacilluria alone and as a mixed infection especially in tuberculosis of the urinary tract.

Chronic arthritis, myocardial degeneration, myalgias and various other systemic conditions apparently may be related to the urinary infection.

*Mode of Entrance of Colon Bacilli Into the Urinary Tract.*

This may be through the urethra in the female with or without instrumentation, and in the male probably only by instrumentation. The prevalence of colon bacilluria in people who have never had catheter or sound passed into the ureter proves the existence of other routes of infection.

In the vast majority of patients the source is

unquestionably the gastro intestinal tract. Obstinate constipation or diarrhea attended with more or less injury of the intestinal mucosa renders the intestinal wall pervious to the bacteria, which may then be carried by the blood or lymph stream to the kidney, ureter and bladder. Colon bacilli from this source have been proved to take on more virulent characteristics.

The diagnosis of bacteriuria is easily made by microscopic examination. The character of the bacteria usually requires a cultural examination of the urine. To obtain a preferably catheterized specimen make primary plate cultures, and the final recognition of the bacterium by sub-cultural and tinctorial tests is a common laboratory procedure.

A careful physical examination of the patient, with chemical and microscopic study of the urine, will enable one usually to make an anatomical diagnosis.

One should never fail to make a careful examination of the external genitals of the patient, both male and female, for focal infection. The rectum should also be inspected. The prostate should be palpated, and the possible sacculation of the bladder by abnormal deviations of the uterus and by lax vaginal wall should be investigated. If indicated, a cystoscopic examination and catheterization of the ureters should be made. The greatest care must be exercised to catheterize the ureter. This is especially true when the bladder is badly infected. The anatomic diagnosis is most important from the therapeutic point of view. If a morbid condition of tissue exist which interfere with the function of the urinary apparatus, no permanent benefit will result from medical treatment until as nearly as possible a normal anatomical condition is brought about. Colon bacilluria may not be removed as long as poor drainage of the urinary tract exists because of sacculation of the bladder, enlarged prostate, stricture or pressure obstruction, or kink, of ureter, of kidney pelvis sacculation, or if calculus or other foreign body be present.

Formerly the recognized treatment of colon bacilluria consisted preferably in prolonged rest in bed, a copious liquid diet of milk, soups, broths, etc., and the use of urinary antiseptics, of which hexamethylenamine is the best. By this method treatment was long, extended to months, and the result was often poor.

For the last five years in the medical clinic of Rush Medical College associated with the medical wards of the Presbyterian Hospital and the laboratory of the Memorial Institute for Infectious Diseases bacteriuria has been carefully studied, and many patients have been treated with autogenous vaccines. The work has been carried on by the clinical department of the college and hospital. I have received most valuable co-operation and aid from my colleagues and assistants. The bacterial cultures and autogenic vaccines

\* Read at the annual meeting of the Medical Society of the State of New York, January 26, 1910.

have been made chiefly by Dr. D. J. Davis\* of the medical department, and now an assistant in the Memorial Institute for Infectious Diseases.

When possible the agglutination opsonic index, bacteriolysis and the leucocytic blood reaction were studied in each patient. The observation of other reporters as to the characters of the bacteria has been confirmed. Those suffering from infection of the urinary tract due to the colon organism comprise more than 50 per cent of the patients with urinary infection. Frequently the gonococcus was obtained with the colon infection from the prostate or seminal vesicles by stripping those organs with the finger in the rectum. Undefined bacteria were sometimes found with the colon and occasionally the unknown organism would be obtained only in plate cultures failing to grow in anaerobic or aerobic subcultures. In some instances the unknown bacterium persisted in the urine after the colon had disappeared and the patient was symptom free.

Colon bacillus infection with tuberculosis of the urinary tract occurred in two patients and the great discomfort occasioned by bladder pain, frequent urination and septic fever were almost entirely relieved by the disappearance of the colon infection by autogenous vaccination.

Two patients suffering from essential hematuria with colon infection have been treated by vaccination. In one, a woman of 24 years, intermittent hematuria had existed for six years or more. A moderate pyuria existed. Repeated examination of the urinary sediment failed to reveal tubercle bacilli. Animal inoculation with urinary sediment was negative. The ophthalmic tuberculin test was negative. Cystoscopic examination revealed a normal bladder mucosa. The ureteral catheter entered the right ureter with difficulty and the drop by drop fluid obtained contained blood, leucocytes and colon bacilli. The left ureter was normal and the freely flowing urine was practically normal. In June, 1907, a right nephrotomy was made; the urine from the kidney pelvis contained red cells and leucocytes and the colon bacillus. The mucosa of the pelvis was thickened and congested. The kidney capsule stripped off normally and a section of the cortex showed histologically interstitial diffuse nephritis. The kidney pelvis was packed with gauze and later was daily injected with argyrol solution, which penetrated to the bladder.

Hemorrhages recurred before the external wound was healed and afterward. Six months later,—in January, 1908,—the patient was again taken into the hospital and injections of autogenous colon vaccines were given every seven to ten days until April, 1908. Hemorrhage

ceased. Since that time the urine is blood free, except for a few red cells in the centrifuge sediment. No urinary symptoms remain.

A physician of fifty-eight who always has enjoyed good health suffered from hematuria without pain in August, 1909. In October cystoscopy revealed a normal bladder mucosa, bloody urine flowing from the right urethral orifice and a normal urine from the left ureter. Ureteral catheterization was negative for obstruction or stone and the X-Ray also was negative. Probable tumor of the kidney was diagnosed. Later he was admitted to the Presbyterian Hospital. The physical examination revealed a good general condition. The urine contained much free blood, many leucocytes, no casts and was acid in reaction. A pure culture of colon bacilli was obtained from the urine. A milky fluid obtained by stripping the prostate showed many pus cells and a few Gram negative intra-cellular biscuit-shaped diplococci. The prostate was stripped every three or four days until no discharge was obtained. The patient was vaccinated with the autogenous colon every seven days. The blood disappeared from the urine after the third vaccination. The urine remains blood free and the patient is apparently well. On Sept. 19, 1908, a physician of 29 years was seized with anuria, uremic convulsions which were partially relieved the first day. Headache, vomiting, occasional mild convulsions continued for six days. The scant urine contained a good deal of pus, but no casts or blood. Oct. 21, 1908, he was admitted to the Presbyterian Hospital. The general examination revealed no perceptible morbid condition of heart, blood vessels, lungs or abdominal organs. The arterial tension was 120 mm. Eyegrounds normal. The urine was acid, contained many polynuclear leucocytes (60 per cu. m. of urine), no casts, no red cells and a trace of nucleo albumin. Many bacilli were seen and a pure culture of colon was obtained. The history revealed the probability that the colon infection of bladder had existed for five years. During that time albuminuria was present for two years and thereafter occasionally only. A month preceding the convulsions he was conscious of lessened strength and endurance, dull headaches, anorexia and lessened excretion of urine.

Autogenous colon vaccination was begun with 400,000,000 bacteria on Nov. 11, 1908. These were repeated every seven to ten days until Dec. 11, 1908, at which time the urine was almost free of bacteria and pus cells.

The patient continued the treatment at home. On March 23, 1909, the urine was sterile and pus free. The patient has had no relapse.

A man 31 years suffering from tuberculosis of the urinary tract which began in the right testis in 1903, was admitted to the Presbyterian Hospital in October, 1907. The right testis had been removed in 1903 and a right nephrotomy and curre-

\* See report by Dr. David John Davis, "Immune Bodies in Urinary Infections with Colon Bacilli and Treatment by Inoculation," *The Journal of Infectious Diseases*, April, 1909. Vol. 6, No. 2, p. 224.

tage of the kidney pelvis was done in June, 1907. The patient was suffering greatly although constantly narcotized with opium. There was a septic temperature, no perceptible evidence of tuberculosis of lungs or lymph glands. The urine very cloudy and discolored with abundant pus, blood and bacteria. Tubercle bacilli abundant in urine sediment. Per rectum a nodule in the right lobe of prostate was tender. The right ureter could be felt as a thick tube and this and the resistant bladder wall were very tender.

From the urine was obtained a pure culture of the colon. The patient was given absolute rest in bed, and received tuberculin (N. T.) mg. 0.001 every seven or eight days and coincidentally therewith was vaccinated with 500,000,000 autogenous colon bacilli. With the third injection the urine became colon free. Coincidentally the urine became much clearer, containing less pus and blood. The frequency of urination lessened from every one-quarter to one-half hour to as long as three or four hours. The general condition improved by the disappearance of fever and sweats and the appetite returned. Opiates were discarded. The patient left the hospital in December, 1907, and has remained on a farm. He has continued to use the injections of (N. T.) tuberculin mg. .001 every seven to ten days. Examination of the urine every six months reveals the presence of a few leucocytes, red cells and small clumps of tubercle bacilli. The bladder irritation is not severe and the general health is good. Probably recovery would occur if the patient would take prolonged rest.

These case reports will suffice here to illustrate the utility of colon vaccine therapy. In a later paper on vaccine therapy in bacteriuria a detailed tabulated report will be made.

Patients suffering with pyelitis with colon bacillus infection have recovered with autogenous vaccination when there was no obstruction to drainage.

Improvement may occur under the treatment in all, but entire recovery from the colon bacilluria will usually not occur if there is stagnation anywhere in the urinary tract. If the enlarged prostate is at fault, rational massage of that organ may be all that is necessary. If there be deformity of the pelvic organs or distortion of the kidney pelvis, or the existence of a urinary calculus, surgical interference should be instituted.

Systemic effects of urinary focal infection must not be overlooked. A chronic infectious arthritis, myocardial degeneration, so called chronic muscular rheumatism and neuritis may be related to the urinary infection. The resistant epithelial layer of the urinary tract probably prevents toxemia until long continuation of the infection causes injury of the epithelial layers and then absorption of toxins may occur.

The bacillus isolated from cases of colon

bacilluria differ from each other more or less in size, luxuriance of growth, etc. It would seem rational, therefore, to use autogenous vaccines. This is easily done. Cultures may be made from urine after it has been transported a thousand miles to a laboratory, by one properly trained in bacteriological technique. We have had no experience with commercial stock vaccines and no comparison may be made of them here.

The autogenous vaccine may be made by heating the culture to 60° C. for 30 minutes. This has proved sufficient to kill the bacilli as shown by control culture. Fresh suspensions of the dead bacilli should be used. Suspensions more than two weeks old may not give the same results. Usually the first vaccination is made with 200,000,000 bacilli. The subsequent dosage may be gradually increased until a decided local and general reaction occurs. The maximum dose in our work was 1,000,000,000. Experience has proved that smaller doses are preferable to larger ones with some patients. 5,000,000 to 100,000,000 may produce sufficient reaction for curative purposes and diminish the risk of a too great reaction.

Absolute rest, much of the time in bed, with a copious fluid diet, chiefly milk, shortens the course of treatment, reduces the risk of chill with the reaction, and makes recovery more certain.

#### *Specificity of Vaccine Therapy.*

The specific effect of autogenous colon bacillus vaccine therapy is proved by the phenomena of reaction. This consists of the local reaction at the point of injection which includes of redness of skin, tenderness and swelling over an area from one to two inches square. This begins in one or two hours after the injection, reaches the maximum in 12 to 18 hours and gradually disappears by the end of 48 to 72 hours.

A general reaction occurs in 2 to 12 hours manifested by general malaise, aching of muscles, bones and joints, more or less headache, more or less fever sometimes preceded by a chill and a leucocytosis. If the patient is up and about reaction is more severe,—manifested by severe chill and fever. In many patients there is irritation manifested by pain, aching, etc., of the kidney, bladder, joints, group of muscles, etc., respectively which is the seat of morbid change due to the colon infection. The specificity is further indicated by an increase in the opsonic index and finally by an immunity manifested by the failure of reaction after vaccination and the disappearance of the bacteria from the urine. One should employ at the same time all rational measures to relieve the patient. General hygiene, personal cleanliness, correction of diarrhea or constipation, hematinics when necessary and as stated above, surgery or mechanical measures to correct anatomic faults which interfere with proper drainage of the urinary tract.

Elsewhere in the paper I have stated that colon bacilluria is a not uncommon occurrence.

In many individuals with this urinary infection there may be no perceptible effects from it. In other patients who suffer from some systemic infection, the conditions may be ascribed to the existing colon bacilluria without due regard for some other possible cause. This statement I think is necessary because I have found that colon infection of the urine has been brought into the foreground by some physicians who have known of pathologic effects due to it and who may misinterpret the condition and fail to look for or to find a real focal infection somewhere else in the body. We must not forget that focal infection of the tonsils, of the sinuses of the head or of some other mucous tract of the body may produce systemic disease. Therefore, while I believe that colon bacillus infection of the urinary tract is sometimes a cause of not only local but also of systemic disease, I would caution those who find this infection of the urine not to be led astray by it and to make sure of its relation to local or systemic evidence of disease by proof of its specificity by such tests agglutinative, phagocytic, bacteriolytic, etc., and at the same time to look for other possible sources of infection before the treatment is begun.

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## VACCINE THERAPY IN SURGICAL TUBERCULOSIS.\*

By LEWIS L. McARTHUR, M.D.,  
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*Mr. Chairman and Gentlemen:*

APPRECIATING as I do the great honor conferred upon me in being invited to make a report on the subject of Vaccine Therapy in Surgical Tuberculosis I have, nevertheless, great hesitation in discussing this subject, since I can bring to your consideration but little novel, new or startling.

The attention of the surgeon was, with the advent of vaccine therapy naturally attracted thereby, because he had so recently learned to appreciate the significance of the (sometimes immense) leucocytosis occurring in the individual invaded by any of the common surgical infective elements. His study of this phenomenon had taught him that this was an effort on the part of the organism to combat the same. He was gratified to observe that a high leucocytosis was usually associated with a favorable issue; and reasoning backward learned how to predicate such an invasion on the leucocytic findings. Encouraged by the knowledge that an increase of leucocytes usually attended the favorable cases, he sought such agencies as should artificially increase their number, notably nucleic acid. Experience soon taught him, however, that not numbers alone, but their phagocytic capacity was the factor

of greatest import. When, therefore, Wright's method appeared of both determining accurately this capacity, and at the same time increasing at will, in the individual his powers of resistance, the surgeon welcomed the same warmly. He already knew that for those infective organisms with which he was most concerned—tubercle bacillus, staphylococcus, gonococcus, streptococcus, colon bacillus—phagocytosis was the chief form of resistance offered; bacteriolytics, bacteriocidins, agglutinins and antitoxins playing only a secondary part. In this mental attitude Dr. John Hollister and I began a series of investigations four years ago which had for its purpose the determination, if possible, of the value to surgery of vaccine therapy. In these researches we were fortunate in securing the enthusiastic and painstaking services of Drs. Lincoln, Vail and Hagans. (A full report of the work was made in October, 1907, *Journal Surgery Gynecology and Obstetrics*, and elsewhere.) Realizing early the current doubts as to the existence of a normal opsonic index, plans were immediately instituted to settle the question, at least to our satisfaction. Unless we could convince ourselves there was a normal index, it was useless to institute a research to be guided in its therapy thereby. To answer this question five different healthy individuals, absolutely free from tuberculosis in so far as could be known, were selected as normals, and their tuberculo opsonic indices determined from 50 to 100 times during the course of six months. The average of any consecutive groups of three or five of these indices was never below 0.9 or over 1.2. To furnish additional data in establishing a normal tuberculo opsonic index, single examinations were made of 100 different persons believed to be normal; these consisted largely of physicians and nurses. The range of their indices was found—with six exceptions—to be as in the normals 0.8 to 1.2. We may then say that the tuberculo-opsonic index in the average healthy individual ranges from 0.9 to 1.2. Compare this with the average index of the recognized tubercular patients reported by us elsewhere, with an average of .68 and a range between .35 to 0.9. In like manner the normal gonococcal index proved to have the similar range of 0.8 to 1.2 in 300 observations.

From these studies it seems fair to conclude that for each of the above mentioned surgical organisms there exists a specific opsonin in the blood of the healthy individual and that in a relatively persistent quantity. Others have determined the truth of similar normal indices for the various organisms.

In the past two years, with wider experiences, there has come to the workers along these lines, the realization that although the tuberculo opsonic index in the healthy individual is quite constant, the variations of the same index in the tubercular patient is influenced by

\* Read at the annual meeting of the Medical Society of the State of New York, January 26, 1910.

so many factors as to, as yet, leave the observer in doubt as to its true value. There remains much to be desired in the correct interpretation of the findings. The advent of the leucocytic count as a diagnostic factor in serious infective invasions met with tardy acceptance because not always corresponding to the surgical findings, to later become an accepted and recognized procedure when the correct interpretation of the variations was forthcoming. Just as we learned to differentiate between the significance of the polymorphonuclears, and the lymphocytes in their relation to infective processes, so there appears to exist a difference between the opsonins found in the blood. This far has progress been made, that a difference in them can be determined through the influence of heat, a certain proportion (34 per cent.) being thermostabile, the remainder thermolabile. Of the 34 per cent. thermostabile—immunopsonins, it would appear (so far as investigations yet go) that they are of the greater importance to the individual, and are the ones to be increased by the use of the appropriate vaccine. Erhard Schmidt's long series of observations on tuberculo-immunopsonins justifies the conclusion "that indices of inactivated sera higher than 0.34 before, and especially *after* injections of tuberculin speak with very great probability for tuberculosis." In a series of investigations of the comparative accuracy of the opsonic index, Pirquet test and ophthalmic reaction made by Dr. Mary Lincoln in our laboratory, she arrived at the following conclusions:

(1) "The percentage of positive reactions to the von Pirquet, the ophthalmic and the opsonic index are substantially the same, ranging from 80 to 90 per cent. in favorable cases, 30 to 40 per cent. in unfavorable cases.

(2) "The more advanced the disease the smaller the percentage of positive reactions.

(3) "Until we can use the tuberculin test with more intelligence than present experience makes possible, we should make more comparative tests in all stages of the disease."

From the above it will be seen that while the hopes inspired by our earlier studies of the index has fallen short of infallibility as a diagnostic method, the later refinements in technique still show an encouragingly large degree of accuracy.

We therefore frankly admit in the present state of our knowledge three things:

1. As a diagnostic method it is not infallible.
2. Its employment as a therapeutic guide to vaccine dosage, while desirable, is not absolutely essential.
3. In the majority of instances it is useful for both and when feasible should be utilized.

Until some such simpler procedure as that proposed by Dr. A. W. Crane, Michigan, in the utilization of the white blood counter, for the simultaneous determination of the degree of

leucocytosis with the phagocytic capacity of the same; until a better understanding of the present occasional vagaries of the opsonic index is ours, we must largely content ourselves with the empiric use of the vaccine guided by the clinical findings.

Having accepted as proven that the phagocytic capacity of the leucocytes can actually be enhanced by the proper use of the appropriate vaccine, there follows as a corollary that any means which will increase the quantity of opsonin containing serum in the affected part, will to that extent assist the phagocytosis. Hence the addition of Bier's passive hyperaemia wherever feasible should be added to the vaccine therapy of surgical tuberculosis. Flooding the tissues with serum containing little or no opsonins will prove of small avail. Increasing the opsonins, while at the same time flooding the affected tissues gives to Bier's treatment its greatest efficacy. Let it be recalled also, that this holds more strikingly true with vaccine therapy in the acute infections than with the chronic lesions under consideration. "Generally speaking, in order to secure the best results in surgical tuberculosis work to-day, one should combine (1) the most approved surgical technique with (2) vaccine therapy, aided where feasible with the passive hyperaemia of Bier."

It has not seemed to me appropriate here to add ours to the already long lists of cases in the literature, demonstrating beyond cavil the beneficial influences of tuberculin upon surgical tubercular processes. I may be pardoned, however, if I make special mention of two or three groups of cases in which I believe we have noted the more gratifying improvements.

I. Tubercular cervical adenitis, particularly in children, has seemed to yield to vaccine therapy. Since this process is invariably secondary to a preceding tubercular process above, care is always taken to remove the primary focus, be it tonsil, adenoids, or other tubercular process, if evidence obtains of its persistence and activity. Should the stage of observation be associated with liquified glands, or fistulae, the former are cleaned out, tuberculin given, and both subjected to the hyperaemia of Bier, by cupping, thus bathing with an opsonin-enhanced serum their interiors, and hastening their early closure. To the general surgeon the two to five months of vaccine injections necessary to effect a cure proves too tedious for his personal attention, hence this work should be delegated to qualified assistants, the patient returning from time to time for observation. When here, or in other tubercular processes the conditions prior to operation are such, that the cut surfaces of the wound are likely to be bathed with tubercular detritus, I believe the time selected for interfer-

ence should be that of high opsonic index, since the capacity to render inert the active infective elements is then greatest; on the other hand if there be no likelihood of local infection of wound, as in the case of glands not broken down, a low index (when not a negative phase) would be the better time, since the manipulation of such glands in their removal acts like a large inoculation. Mesenteric gland tuberculosis likewise exhibits the beneficial action of tuberculin.

II. Cases of peritoneal tuberculosis with effusion, have been cured in the past by operative measures. It seems probable now that the cure is effected by the replacement of old serum low in opsonins, by serum of higher opsonin. If the opsonic content of the blood serum be raised by vaccine prior to the operative interference, the efficacy of the procedure is proportionally enhanced.

III. Genito-urinary tuberculosis, in some instances, has furnished to the vaccine therapist, some of his most startling results. Here, too, the surgeon is less free to institute his radical procedures, for while it is often possible to effect a brilliant cure by the removal of the primary focus when single, many times we have to deal with a bilateral renal lesion, or a general genito-urinary tract invasion, or a bladder and prostate tuberculosis. In such instances relief has been afforded, symptomatic cure has been effected, and the sufferer rendered once more comfortable. Interesting observations during the treatment by vaccine of such cases have been made by Hektoen. Prior to treatment he found a highly purulent urine, with clumps of tubercle bacilli free in the urine, none in the leucocyte, and great dysuria; after some vaccine therapy bacilli begin to be found in the leucocyte, few free; to be followed by no free bacilli, all in the leucocyte. Later, fewer bacilli in leucocytes, finally few leucocytes with no bacilli, and no dysuria. Patient symptomatically well.

In conclusion, above all things I do not wish to be understood as advocating the use of vaccine therapy to the exclusion of a single means already known to be efficient. On the contrary, it is to have added to all the other known factors for good, what there may be of aid in vaccines. Active immunity in the acute infections, can best be secured only when the opsonic index is utilized as a guide. In a limited group of instances, especially chronic local tuberculosis, it is possible by exercising proper care to secure results without it. Experience in using vaccines without regard to such control has been discouraging and thrown doubt upon the efficacy of the procedure.

## THE TREATMENT OF SURGICAL TUBERCULOSIS BY VACCINES.

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IN the scope of this paper it is an almost insurmountable difficulty to attempt to correlate and condense the facts that are necessary for a fit discussion of the subject which we propose to place before this meeting. Since Koch first announced his great discovery, investigators from all quarters have poured into literature the fruits of their investigations. This vast amount of work, resulting in no definite goal, has had its origin in the fact that the tubercle bacillus has not conformed to the lines followed by the great mass of bacteria. Such being the case let it be granted: *First*. That up to the present we have no exact scientific knowledge of the true toxins elaborated by the bacillus. *Second*. That we have no conception whatever of the immunity response offered by the body to combat an invasion by the organism. *Third*. That we are not even certain whether the body enjoys a general or but a local resistance toward the tubercle bacillus.

Tuberculosis is essentially a local disease; but is the resistance offered to it by the body a general one, that is one lying in the blood itself, or a local one, that is, one lying in the tissues themselves, or a combination of these two? The point at issue is of far greater importance than would at first appear, since it has a direct bearing upon the great problem that confronts us. The probability is that the combination of the two holds true, otherwise contradictions exist. Thus tubercle bacilli themselves, and by this we refer to the human and bovine types particularly, are in our present knowledge among the most highly organized in the bacterial world. It would seem, according to some authorities that these two types are the result of an evolution, which has raised them from the ranks of the lowest non-pathogenic forms of acid resistant organisms, such as are found everywhere in nature, through hosts of increasing complexity until the present parasitic state has been attained. It is due to this high degree of organization that, after years of study, the pathologists are forced to the conclusion that specific therapy is yet far off. Infections with the tubercle bacillus are local ones, as we have pointed out above, and except in certain conditions they do not, per se, produce temperature. Yet from the local foci toxins must be absorbed, otherwise no deleterious effects could ensue. What the toxin is we do not know, nor has it ever been obtained; Marmorek's serum obtained

\* Read at the annual meeting of the Medical Society of the State of New York at Albany, N. Y., January 26, 1910.

from the growth of the bacilli in a leucotoxic medium is said to contain this toxin, but this has not been proved. Tuberculin, it is said, does not contain it, and yet it has a known curative value. Since Koch's first announcement of his discovery of the tubercle bacillus every conceivable method has been exploited in an endeavor to produce either an active or passive state of immunity or resistance towards the organism. Von Behring, following Koch's announcement that there were two distinct types of bacillus, the human and bovine, declared that in his bovine vaccine he had discovered Jennerization as applied in his experiments to the raising of an immune state in calves towards the bovine forms of tuberculosis. Unhappily recent announcements show clearly that no immune state exists, only a resistance lasting over a short variable space of time, to be followed by a state of increased susceptibility. That no immune state exists is proved by the recovery of living virulent organisms from the lymph glands of the animal inoculated. Jennerization has failed, Pasteurization has failed, the various sera have failed. Tuberculin alone has given a certain measure of success. What the action or reaction of the various tuberculins is we do not know for certain, but it is believed that the action is upon the tuberculosis tissues and not directly upon the bacilli themselves. That there is an anti-tuberculin present is undoubted since Wassermann has demonstrated that complement fixation takes place in tubercular infections, but it has not been proved that this substance is bactericidal. Nor have the agglutins, upon which some diagnostic value has been placed, so far been shown to inhabit the disease. It is so with all other bodies with the one possible exception—the opsonins. Wright and Douglass claimed that these opsonins were bactericidal, and showed that by increasing their content in the serum the phagocytic power of that serum was raised. They deduced from this that opsonins were directly responsible for immunity to certain diseases, although such a role cannot be placed entirely to the credit of these bodies, yet certainly the fact remains that subsequent to inoculation with tuberculin the opsonic content of the blood is increased. With this increase clinical improvement is in many cases manifested. Whether this improvement is due to the opsonins or simply to a local hyperæmia cannot be proved. Bullock makes the statement that cases of lupus with a high opsonic index give better results with X-ray treatment than those cases which possess a low index. He further states that these later cases, upon their index being raised, also do more satisfactorily. This does not prove that opsonins are responsible for this improvement, but that their estimation gives some indication of the resistance, whatever it may be, that is offered

by the body against the infection. If we consider then the opsonins as a measure, not of the immunity but of the general resistance offered, we have a practical foundation to work upon. This foundation is possibly an empirical one but it is the only one presenting itself to us. Agglutination tests have been and are employed, but since these bodies are frequently absent in the disease, their use, as governing tests, seems inadequate. Having defined this empirical position, upon which our ideas rest, we may be permitted to approach closer to a practical consideration of the use of tuberculin as applied to surgical tuberculosis. In the combination of treatments, surgical and laboratory, we have kept constantly before us this viewpoint—the improvement of our patient. In our attempts to prove our contentions we have employed only comparative deductions; that is, a comparison between our former surgical results without the use of tuberculin, and of our present surgical results with the use of tuberculin.

We will not enter into the question of the general pathology of the surgical forms of tuberculosis in this discussion, and will but give passing notice to the bacteriology of it. It is becoming the consensus of opinion among the bacteriologists of today that the tuberculosis found in the human body and in different animals is caused by the same organism, variously altered in character by its prolonged habitat in its various hosts. It may be taken as well established that the disease occurring in the human body is caused by either two of these approximate types of the organism. First: The human type of the tubercle bacillus. Second: The bovine type of the tubercle bacillus. These two types can be definitely differentiated by appropriate laboratory methods, with which we will not concern ourselves in this discussion. The human type of the bacillus is the one more commonly found in the adult, that is, in the tuberculosis of the lungs. The bovine type of the bacillus is the one more commonly found in children, that is, in the surgical forms of the disease. The two types may, however, be co-existent in the same patient. It is interesting to note that the two types may be found in the same location under different circumstances; namely, in laryngeal tuberculosis, we find that when the disease is primary it commences in the deeper layers of the mucous membrane, and is usually bovine in its type; when the disease is secondary to tuberculosis of the lungs it commences as a superficial ulceration or erosion of the mucous membrane, and the type is similar to that causing the pulmonary tuberculosis, which is more commonly human in its type.

We will not enter into the question of the diagnosis of the surgical forms of tuberculosis in this discussion, except to say that we have used in our practice the various tests for the detection of early or suspected tuberculosis, and



have found them to be fairly reliable, when taken in conjunction with the clinical symptoms and the physical signs.

Without further preface we will direct our attention to the problem of treatment, and we will deal at some length with the question of the raising of the resistance of the patient with tuberculin. It is not necessary for us in addressing this body to deal with the surgical methods and measures to be employed, but at the same time we wish to impress upon you that the raising of the resistance of the patient is but an aid to sound surgical procedure. The problem of treatment is a large one and can best be approached by dividing it into classes and discussing each class by itself.

1. The kind of tuberculin to be employed.
2. The estimation of the dose of the tuberculin.
3. The surgical remedies.
4. The question and time of the operation.
5. The treatment following the operation.
6. The treatment of cases which have been operated upon without preliminary treatment with tuberculin, and followed by the formation of sinus or sinuses.

1. *The kind of tuberculin to be employed.*—In our practice we use only the emulsion of the dead tubercle bacilli and in speaking of tuberculin or vaccine in this paper we wish it to be understood that this preparation is meant. From our experience in the treatment of other bacterial infections one would think that a specific or autogenous vaccine would be the ones to employ in the treatment of these patients. It is usually difficult, and in many cases impossible, to isolate the specific infecting organism in the surgical forms of tuberculosis; moreover, it has been found by experience that an appropriate stock vaccine fulfils the requirements of the case, just as in the case of staphylococcus and other infections. Experience with stock vaccines, however, demonstrated that the patient was most benefited by a vaccine prepared, not from the bacillus of the type causing the disease, but from the bacillus of the other type. This is in direct variance with our experience in the treatment of other bacterial infections, and we are not prepared at present to offer an explanation. The types is possible by appropriate methods, but as it requires a great amount of time and work it is seldom done, except for the sake of special scientific interest.

Raw of Liverpool made the statement both in this country and abroad that all cases of localized tuberculosis were due to the bovine type of the bacillus, and that only pulmonary tuberculosis was due to the human type of the bacillus. He further stated that the two forms could not exist in the body at the same time, because the infection with the one immunized

the body against the other. These statements were seized by workers in tuberculin with delight, since it made the diagnosis as regards the type of the infection extremely simple. Unfortunately other investigators have flatly denied these statements of Raw, and have proven beyond question that although localized tuberculosis in a large percentage of cases is due to the bovine type of the bacillus, yet the human variety is responsible for a considerable number of cases. Early in our experience we accepted Raw's teachings and used a vaccine prepared from the human type of the bacillus in our treatment of the surgical forms of the disease. In those cases, however, which did not appear to be progressing as well as we expected, we changed to the bovine tuberculin with benefit, so we thought, to our patients. This improvement, and in many cases it was marked, pointed strongly to an erroneous diagnosis as to the type having been made. It was, however, noted under the administration of the first vaccine that although the local focus of the disease was not perceptibly altered, the general condition of the patient was, if anything, slightly improved.

The difficulty in making an absolutely correct diagnosis as to the type of the bacillus causing the disease, and also the fact that the use of the vaccine, of the same type as that causing the actual focus, does not seem to have any harmful effect on the patient, led us some twelve months ago to the employment of a mixture of the two vaccines, as advocated by Allen, in all of our cases, irrespective of the type of the bacillus causing the disease. Our results have been most gratifying. If on continued further trial in the use of the mixed vaccine our results warrant us in their continuance it will be of the greatest service in our treatment of these cases. It will make the question of diagnosis much simpler, as the need of accurate differential diagnosis between the two types of the bacillus will be abolished, except for the sake of special scientific interest.

2. *The estimation of the dose of the tuberculin.*—When tuberculin was first introduced by Koch and used by the profession there was no method by which the dose could be estimated. Indiscriminate dosage was the result, and in nearly all cases large doses were the rule. The reactions following the use of the tuberculin were marked; the results were unsatisfactory and in many cases disastrous, in fact so much so that the therapy soon fell into disrepute and was practically discarded by the surgical profession. In the use of tuberculin the dose is the all important factor. This holds true not only when the patient is being inoculated with tuberculin, but also when autoinoculation is being practiced; regarding the latter we refer to passive movements. In considering the dose of tuberculin

to be employed the following points must be studied.

- A. The personal equation.
- B. The site of the lesion.
- C. The state of the health of the patient.
- D. The age of the patient.
- E. The question of autoinoculation.
- F. The opsonic index to the tubercle bacillus.

A. *The personal equation.*—Occasionally upon inoculation a violent reaction follows upon a dose which, under ordinary circumstances, would be attended by no untoward symptoms. This is possibly due to a personal idiosyncrasy, or more probably, if we are to believe the theory of Calmette as to the production of reaction following inoculation, to the setting free of toxins from a lesion that is, if we may be allowed the license, in an unstable state. The patient in other words is in a state of increased susceptibility; this susceptibility is a local one confined to the lesion itself, the general signs being due to toxins liberated as the result of the reaction. From this point one may deduce the truth, that the earlier the lesion the smaller the initial dose. Old standing cases tolerate larger doses than do the more recent ones.

B. *The site of the lesion.*—This especially applies to tuberculosis of the epididymis and kidney, as patients suffering from an infection of these organs do not tolerate as large doses, as do patients suffering from infections of other parts of the body. Formerly we made it a practice not to inoculate in tuberculosis of the kidney unless the other kidney was unaffected. The dangers of causing a marked reaction in a diseased secretion organ is apparent. At the present time, if there seems to be any hope of overcoming the disease, we inoculate, but only with extremely small initial doses, increasing with caution. We feel although a certain amount of hyperæmia accompanies even the smallest of doses, that it is of so mild a character that no harm can be done.

C. *The state of the health of the patient.*—Tuberculin is one of the most powerful drugs at our command. The stimulation following its use is sharp and strong. Its first effect is to paralyze the cells; this passes off and is followed by a true stimulation, whereby the cell production is increased. In order to respond to this stimulation the body cells must be in as fit a condition as it is possible to place them; with this in mind every possible attention should be paid to the hygienic surroundings and general condition of the patient. It was demonstrated during experiments on animals that vaccinated calves during the vaccinal period were more prone to tubercular infection than non-vaccinated ones. Bearing this in mind it is wise to specially guard our patients during treatment from sources of fresh infection.

D. *The age of the patient.*—Just as in the prescribing of other strong and powerful drugs the

age of the patient is an important desideratum in our estimation of the dose of tuberculin. Children tolerate a much larger dose, comparatively speaking, than do adults.

E. *The question of autoinoculation.*—Of all considerations of the estimation of the dose this is the most important. It is obviously impossible to estimate the dose of the tuberculin to be administered, if the patient is constantly by active movement giving himself irregular doses at irregular intervals of what practically amounts to the same thing. The old surgical dictum, "That an infected part must be put at rest" is more true in the employment of the vaccine than in any other therapy. Autoinoculation must be reduced to a minimum by appropriate surgical methods if we are to hope for successful results. If the clotting power of the blood be low, as demonstrated by the increased clotting time, calcium lactate should be administered to lessen absorption from the focus of the infection.

F. *The opsonic index to the tubercle bacillus.*—In our work we employ both the opsonic and fractional dose methods. Many claim that the opsonic index is of no value. It is quite true that it has not the great practical value that was at first claimed for it. It is quite true that it is subject to a considerable error, but very little more, if any, than other clinical estimations. The index has played a most important part in the past, and still enjoys a considerable value. In difficult cases, in mixed infections as with the bacillus coli communis, in diseases of the genito-urinary tract, in those cases in which it is desirable to obtain a sufficient response with the smallest possible dose, the index is of considerable value. In those cases which possess no particular difficulties, the fractional method is indicated; it requires close attention and experience if results are to be obtained.

In treatment with tuberculin "haste" must be avoided; results are slow. The resistance should be raised and tolerance established to the drug gradually. After each inoculation a reaction follows in the local lesion, but this should be of so mild a character as to be, in the earlier doses, not noticeable. Formerly it was the practice to administer large doses at long intervals, but we believe that more benefit is to be gained by small doses at short intervals. In our cases we have seldom found it necessary to give a larger dose than one to four thousandth part of a milligram of the combined tuberculins. The interval between inoculations ranges between five and seven days.

3. *The surgical remedies.*—We will not discuss in this paper, as stated above, the question of the surgical methods and measures to be employed in the treatment of the surgical forms of tuberculosis; let us take it as granted that such are given their proper and most important posi-

tion in the total question of the treatment of the condition.

4. *The question and time of operation.*—In those cases where operation is necessary the institution of inoculations prior to the operation is of the greatest value. The benefit to be gained by this is too great not to be emphasized. In tubercular glands of the neck especially does this apply. It is impossible in this condition to remove all of the glands. The surgeon aims at removing those in sight, and relies on the body to overcome the disease in the small remaining ones. If this obtains a beautiful result is procured. But how often do we see several unsightly scars upon a neck, and how often do we see sinuses persist after operation? We believe that with efficient prior inoculation these dangers are eliminated. In regard to treatment, glands of the neck may be divided into three classes:

*First.*—Those cases in which recovery is possible without operation.

*Second.*—Those cases in which the necessity of operation is probable.

*Third.*—Those cases in which caseation has occurred and progressed to liquefaction and in which operation is inevitable.

*First.*—In this class of cases the glands are small, discrete and not perceptibly matted together. There is no evidence of breaking down. This class does remarkably well under tuberculin treatment.

*Second.*—In this class of cases the glands are large and very much matted together. The process is usually too extensive to be cured by tuberculin unaided by operation. The line of procedure to be followed is to inoculate over a considerable space of time. The glands must be kept under constant observation to instantly forestall by operation any extensive softening. This class, rarely, if ever, arrives at anything but a most satisfactory termination.

*Third.*—In this class of cases operation is inevitable, and the procedure that we follow is to aspirate when possible. If we can by this means and by the use of tuberculin control the breaking down until we have the glands in a favorable condition for operation, we do so; but if the process is progressive, in spite of these means, early operation is imperative. In tuberculosis of the epididymis the same procedure may be applied. Prior to any operative interference it is wise to estimate the clotting power of the blood, and if low, administer calcium lactate in order to lessen as much as possible the autoinoculation following the traumatism of the operation. Bearing in mind that the first effect of the tuberculin, as pointed out above, is paralysis of the cells, it is wise to wait until that effect has given place to the true stimulating effect before performing any operation, that is, wait until the patient is at or about the climax of the positive phase.

5. *The treatment following operation.*—When the auto-inoculation caused by the traumatism of the operation has become reduced to a minimum, inoculations with the vaccines should be reinstated and continued for at least six months. We find that in patients treated with the tuberculin prior to operation the wounds heal promptly with very little tendency to a secondary infection. Where, however, secondary infection does occur it quickly responds to inoculations with the appropriate vaccines.

6. *The treatment of cases which have been operated upon without preliminary treatment with tuberculin, and followed by the formation of a sinus or sinuses.* In this class of cases the sinus or sinuses are lined with a thick pyogenic membrane, and we have, in addition to the tubercular infection, secondary infecting bacteria. Smears and cultures should always be taken to determine the secondary infection, and appropriate vaccines prepared and administered. The clotting power should be estimated, and if high it should be lowered by the administration of citric acid in order that the serum may have better access to the focus of the disease. If, after several weeks of inoculations with the tuberculin and the appropriate bacterial vaccines, and after the use of iodine and agents to promote osmosis, there is not distinct improvement it is usually necessary to thoroughly curette away the thick pyogenic lining membrane, in order that the vaccines may have better access to the focus of the disease.

In conclusion we would say that, after a wide experience in the treatment of the surgical forms of tuberculosis, we are of the emphatic opinion that in tuberculin we have an invaluable aid. Soon after the inoculations are instituted the general constitutional condition of the patient is materially improved; he feels better, he appears better, and he soon shows that he is really better by an increase in his weight. We would like to impress upon you that very marked improvement in the local disease is not to be looked for until after several months of inoculations. Where operations are performed upon patients, previously treated with tuberculin, the wounds heal, as a rule, promptly; the danger of secondary infection is much reduced, and where it does occur it quickly responds to the inoculations with the suitable vaccines; the dangers of a general systematic military infection and the dangers of lardaceous disease are practically eliminated.

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In the scope of this paper it is an almost insurmountable difficulty to attempt to correlate and condense the facts that are necessary for a fit discussion of the subject, which we propose to place before this meeting. Since Koch first an-

nounced his discovery, investigators from all quarters have poured into the literature the fruits of their investigations. This vast amount of work, resulting in no definite goal, has had its origin in the fact that the tubercle bacillus has not conformed to the lines followed by the great mass of bacteria. Such being the case, let it be granted: *First*. That up to the present, we have no exact knowledge of the true toxins elaborated by the bacillus. *Second*. That we have no conception whatever of the immunity response, by the body, to combat an invasion by the organism. *Third*. That we are not even certain whether the body enjoys a general or but a local resistance towards the bacillus. Tuberculosis is essentially a local disease; but is the resistance offered to it by the body a general one, that is, one lying in the blood itself, or a local one, that is, one lying in the tissues themselves, or a combination of these two? The probability is that the combination of the two holds true, otherwise contradictions exist. The tubercle bacilli themselves, and by this we refer to the human and bovine types chiefly, are, in our present knowledge, among the most highly organized in the bacterial world. It would seem, according to some authorities, that these two types are the result of an evolution which has raised them from the ranks of the lowest non-pathogenic forms of acid-resistant bacteria, such as are found everywhere in nature, through hosts of increasing complexity, until the present parasitic state has been attained. Infections with the tubercle bacillus are local ones, as we have pointed out above, and except in certain conditions they do not, per se, produce temperature; yet from the local foci toxins must be absorbed, otherwise no harmful effects could ensue. What the toxin is we do not know, nor has it ever been obtained. Marmorek's serum is said to contain this toxin, but this has not been proved. Tuberculin, it is said, does not contain it, and yet it has a known curative value. Since Koch's first announcement of his discovery of the tubercle bacillus, every conceivable method has been extended in an attempt to produce either an active or passive state of immunity or resistance towards the bacillus. Von Behring declared that in his bovo-vaccine he had discovered Jennerization, as applied in his experiments to the raising of an immune state in calves, towards the bovine forms of the disease. Unhappily, recent announcements show clearly that no immune state exists; only a resistance, lasting over a variable short period of time, to be followed by a state of increased susceptibility. That no immune state exists is proved by the recovery of living virulent bacilli from the lymph glands of the animal inoculated. Jennerization has failed, Pasteurization has failed, the various sera have failed. Tuberculin alone has given a certain measure of success. What the action, or reaction, of the various tuberculins is, we do not know for certain, but it is believed that the action is upon the tuberculous tissues and not upon

the bacilli themselves. Wasserman has proved that anti-tuberculin is present in the tissues, but it has *not been proved* that this substance is bactericidal. Nor have the agglutins been shown to inhibit the disease. It is so with all other bodies, with the one possible exception, the opsonins. Wright and Douglass claimed that these opsonins were bactericidal, and demonstrated that by increasing their content in the serum, the phagocytic power of that serum was raised. They deduced from this that opsonins were directly responsible for immunity to certain diseases. Although such a rule cannot be placed entirely to the credit of these bodies, yet certainly the fact remains that subsequent to inoculation with tuberculin, the opsonic content of the blood is increased. With this increase clinical improvement is manifested. Whether this improvement is due to the opsonins, or simply to a local hyperæmia, cannot be proved. Bullock makes the statement that cases of lupus with a high opsonic index, gives better results with X-ray treatment than those cases with a low index; he further states that these latter cases, upon their index being raised, also do much better. This does not prove that opsonins are responsible for this improvement, but that their estimation gives some indication of the resistance, whatever it may be, that is offered by the body against the infection. If we consider, then, the opsonins as a measure, not of the immunity, but of the general resistance offered, we have a practical foundation to work upon. This foundation is possibly an empirical one, but it is the only one presenting itself to us. Having defined this empirical position, upon which our ideas rest, we may be permitted to approach closer to a practical consideration of the use of tuberculin as applied to surgical tuberculosis. In the combination of treatments, surgical and laboratory, we have kept always before us this viewpoint, the improvement of our patient.

### A CASE OF CHRONIC GLANDERS TREATED BY AN AUTOGENOUS VACCINE, WITH RECOVERY.\*

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**I**N the year 1909, 939 cases of equine glanders were reported to the New York Board of Health as follows: Manhattan, 449; the Bronx, 113; Brooklyn, 335; Queens, 30; Richmond, 12, total 939. This by no means includes all the cases of glanders in existence in the city but only the acute cases which it was impossible to conceal and the bad chronic cases, all of which were destroyed by the Board of Health. The writer has been assured by veterinarians that there are many glandered horses constantly in use, as work horses. Veterinarians do not re-

\* Read at the annual meeting of the Medical Society of the State of New York, at Albany, N. Y., January 26, 1910.

port all the cases which come under their notice since to do so would result in serious damage to their practice. It is idle to attempt to estimate the number of such cases which go unnoticed and uncared for, but it is evident that the number of actual reported cases of the disease in the City of New York in one year furnish a formidable group of foci from which to disseminate the disease, not only to other animals, but to human beings as well. Yet from 1905 to 1909, there were but seventeen deaths from human glanders reported to the Board of Health. Why have the cases been so rare? The most natural reply to this question is the assertion that man is not very susceptible to the disease. Undoubtedly man must be less susceptible to the disease than the horse, just as in fact the horse is less susceptible than the donkey and mule. In view, however, of the undoubted fact that where inoculation by a wound has taken place in the human subject the disease has invariably made its appearance with promptness and extreme virulence, this supposition does not seem well founded.

Out of the 156 cases of chronic glanders tabulated in Robin's classic monograph (1906), thirty-seven were the result of direct wound inoculation. Of these cases twenty died and seventeen were said to have recovered, a mortality of over 56 per cent. Moreover, in a number of the recovered cases the cure was incomplete. Therefore, as deaths have been reported from recrudescence of the disease without reinfection as late as five years, 56 per cent. does not accurately represent the mortality in the inoculated cases.

In view of these facts it is hardly reasonable to ascribe the relative rarity of glanders to a want of susceptibility to the disease in human beings. Glanders, moreover, has the highest mortality record among laboratory workers of any of the pathogenic organisms except plague.

We are forced then to the conclusion that many cases of glanders are treated for other diseases, the true diagnosis never being made, and that this is the reason why it appears to be relatively rare. In Robin's series, cases of glanders had been treated for syphilis 5 times; eczema, 1; typhus, 1; cadaveric poisoning, 3; pernicious anæmia, 1; nasal polyp, 1; tuberculosis, 2; rheumatism, 5; typhoid, 4; ague, 2; sarcoma, 1.

Robin says also that a probably wrong diagnosis of tuberculosis was also made in several other cases not here tabulated. These, however, were cases which were ultimately recognized as glanders. How many such cases have died as cases of tuberculosis or syphilis or typhoid? No one can say. The disease is protean in its manifestations and quite frequently it is impossible to trace it to its origin. The diagnosis must often depend entirely on the bacteriological findings. This was so in the case which is the basis of this paper, the history of which is as follows:

March 3, 1909, Antonio Lamonia was admitted to my service in the Long Island College Hospital with the following history:

Lamonia was a macaroni worker but on account of dulness in the trade for the preceding winter, 1908-9, had been working as a longshoreman. He had not had the care of horses nor had he been nearer them than in the ordinary routine of his work. In December he was told by a physician that he had an ulcerated tooth and a molar was removed from his upper left maxilla by a dentist. A few days after this the left side of his face became hot, swollen, painful and red. He went to the dispensary, where an incision was made and an abscess cavity drained. On admission to the hospital the following March there were two sinuses both leading down to the superior maxilla of the left side with slight and thin discharge. Temperature normal.

I regret that no cultures were made from these sinuses, but at the time the case presented nothing different from that which was to be expected as the result of a necrotic focus in bone. The sinuses were laid open and some carious bone removed with the curette, and an iodoform gauze dressing applied. This was on March 5th. Sharp reaction followed the operation, the face becoming much reddened, the temperature rising on the 6th to 104, reaching normal, however, on the morning of the 10th. On the 12th at midday it rose sharply to 104, falling on the following day to normal, on the 16th rising sharply to 103 and again falling on the following day to normal where it continued with occasional fluctuations of a degree until the 23d when it shot up to 105 where it continued for twelve hours, falling on the 25th to 97 at 4 P. M. and rising at 8 P. M. to 105. On the 23d the patient first complained of severe pain in both ankles and legs. Both ankles were swollen but not red. By this time there was nothing about the wounds in the face to indicate that they were the source of the trouble in the lower extremities. In fact they healed quite promptly and permanently. The disturbances in the ankles were therefore thought to be of rheumatic origin and anti-rheumatic treatment instituted. The patient, moreover, perspired profusely. It was necessary to give him morphin constantly as the pain in the lower extremities was very severe, the morphin only controlling it for two hours at a time. The swelling and pain in the right leg disappeared, but that in the left became worse and on the 30th, one week after the supposed rheumatic symptoms appeared a Bier's congesting bandage was applied above the knee, 10 hours on, 2 hours off. April 3d the house surgeon opened an abscess in the vicinity of the ankle which discharged pus and blood. On the 4th, an abscess appeared in the calf of the left leg and the writer requested Dr. Benj. White of the Hoagland Laboratory to take a culture from this when opened. An incision released grumous, bloody pus. A blood count was

however surprising, 8000 leucocytes, 76% polynuclears. All rheumatic treatment was now discarded and the case regarded as one of pyemia, dependant on the original operation. On April 7th further abscesses appeared in the vicinity of the ankle and on the leg. These were flattened without much redness and reminded the writer of the flat cold abscesses which he used to see in the small-pox hospital as sequelæ of variola. The character of the pus was always the same, grumous and bloody. Blood cultures were taken on April 7th by Dr. White, also cultures from the fresh abscesses and smears on glass slides. The blood cultures were negative but the smears on the slides showed occasional Gram negative bacilli. Further laboratory details and the bacteriological report of the case will be treated by Dr. White in another part of this paper. As a result of his investigations he reported to the writer that the patient was suffering from glanders. He was immediately isolated and a special nurse put in charge of him. Every morning the floor of the room was flooded with a 1-1000 solution of sublimate. The nurse and house officer in charge wore rubber gloves when dressing the abscess cavities, and all soiled dressings were immediately taken to the hospital crematory and burned. All receptacles in the room were treated with sublimate solution. At the request of the writer Drs. White and Avery of the Hoagland Laboratory made an autogenous vaccine from the patient's own organism, and save the usual surgical care of the abscesses and supporting treatment no other therapy was used, with the exception of the congestive treatment of Bier. April 15th patient received a dose of 10 million dead bacilli in the skin of the abdomen. On the 17th he complained of pain in the left arm and shoulder. On the 18th he received a further dose of 20 million and on the 22nd, 40 million. The same day a swelling appeared over the region of the elbow of the left arm. On the 24th an incision was made in the lower extensor surface of left arm which was painful, tender and swollen but no pus was found. On the following day a second incision was made higher up without result. On the day on which the patient received the 40 million, he had an intestinal hemorrhage and voided about 10 oz. of blood. Five hours later another stool was voided without blood. On the 27th there was pain in the abdomen and some distension. Patient had a chill and temperature of 105. On the 28th he had two medium sized blood clots in his stool. May 1st abscesses in the left leg were healed. Patient received a vaccine of 80 million May 3, pain in left elbow and forearm severe; May 4, incision failed to find pus. May 9th, 100 million vaccine. May 12, surface back of left ear tender and swollen. Incisions and cultures both negative. May 15, incision in left arm followed by evacuation of bloody grumous pus similar to that which had been obtained in

the left leg. May 16 patient received 125 million vaccine. The remainder of the history is that of continued dressing of abscess in forearm which was irrigated with sublimate solution 1-1000, dressing being done daily. During the summer one or two small recurrent abscesses in left forearm were opened and healed. The last abscess, which was quite small, was opened the last week in September and on October 7 patient was discharged apparently well, greatly improved in health, in fact quite fat. Since then patient was seen twice in the month of December and stated that he was doing longshore work and had remained well since leaving the hospital.

A summary of the vaccine therapy is as follows:

Date.	Dose.	Reaction.
Apr. 10.....	10 million	one degree
" 18.....	20 "	two degrees
" 22.....	40 "	2-5 "
" 26.....	60 "	2 2-5 "
May 1.....	80 "	2 2-5 "
" 9.....	100 "	5 "
" 16.....	125 "	2 "
" 24.....	150 "	3 "
Jun. 2.....	100 "	5 3-5 "
" 8.....	175 "	3 2-5 "
" 17.....	200 "	4 "
" 24.....	225 "	1 2-5 "
Jul. 1.....	250 "	1 3-5 "
" 9.....	300 "	2 "
" 17.....	300 "	unknown "

Thus there were fifteen injections of the autogenous vaccine made commencing with 10 million, the final two being 300 million each. The average interval between doses was about seven days. The reactions after the vaccines ranged from 1 2-5 to 5 3-5 degrees, and were in part due to the mallein in the vaccine. Up to the present time, in four months the patient has had no return of his symptoms. It cannot be said, however, that he is cured in view of the fact that the disease is subject to fresh outbreaks, after periods of quiescence. Indeed Robin records one remarkable case in which the individual was supposed to have entirely recovered and for five years afterward was engaged in the care of cattle exclusively, never coming in contact with horses during that entire period. Now cattle are immune to the disease, yet at the end of this period this man developed the disease and died of it. It is stated that it was impossible for this man to have become reinfected.

There are some significant facts to be recorded in the history of this case. First, it was impossible to trace the source of infection as the man had never been brought into intimate relation with horses. Second, none of the ordinary symptoms of glanders ever developed in the 130 days the patient was in the hospital. He had no eruption, no pustulation, no coryza or nasal discharge. For a few days he had a slight cough but this was of little moment and no cultures were ever obtained from the slight expectoration present, nor from the nasal secretions.

Pure cultures of the bacillus mallei were invariably secured from the contents of the abscesses in left forearm and leg. No cultures were ever obtained from the blood.

The clinical features of the disease were the very severe pains in the affected extremities without redness or swelling at first, followed by abscess formation apparently between the muscular planes rather than in the muscles themselves. No disturbance of function or contractures followed healing as might have been expected if the suppurative processes had been in the muscles themselves with resulting loss of muscle substance and the formation of eschar in the muscle bellies. The formation of obstinate abscesses in left arm and leg with high temperature was the sole clue to the disease.

The diagnosis of the true condition was entirely due to the resources of the bacteriological laboratory. Otherwise the case would have been called a pyæmia.

The importance of making a correct diagnosis in such a case as this cannot be overestimated. In Robin's exhaustive monograph on the subject the extremely contagious nature of the disease is emphasized by the fact that Robin reports the following cases of infection from human cases:

1. Old man took care of son who died of glanders.
2. Woman washing son's clothes. Both contracted glanders.
3. Surgeon contracted acute glanders operating on patient, a physician with disease, source of infection unknown. Surgeon died.
4. Woman dressed husband's abscesses, contracted disease.
- 5 and 6. Two children of this couple. The whole family infected from one case.
7. Nurse of patient with glanders died of acute glanders contracted from him.
8. Husband contracted glanders from wife and died.
9. Nurse took glanders from patient ill with disease.
10. Mother of patient who died of glanders had buccal congestive salivation, etc.
11. Wife of man ill with chronic glanders, infected per vaginam, died.
12. Wife of man fatally ill with acute glanders, infected per vaginam, duration of illness 28 months, probable cure.

In view of these facts we cannot conclude that man is insusceptible to glanders, but rather the contrary, and that no precautions are too great to prevent the spread of the disease. The practical lesson to be learned from the case here reported is that it ought to be the invariable practice in all well organized and properly conducted hospitals to hunt down each infection to its bacteriological source. In a few hospitals exceptionally equipped this is already done, but it is not the rule but rather the exception. It should be the rule and not the exception.

The principal points of interest in the bacteriological diagnosis of glanders in the present case may be briefly summarized thus:

1. Isolation of *B. Mallei*, always in pure culture, from the local lesions.

2. Negative blood cultures.

3. The difficulty experienced in demonstrating the bacilli in stained preparations of pus or exudate from the lesions, emphasizes the necessity of controlling such smears with cultures. The small number of bacilli present at the site of infection bears evidence of the high virulence and powerful toxin production of this organism.

4. Positive agglutination test both of the bacillus isolated with a known serum, and of a known culture by the patient's serum.

5. Positive Straus re-action.

#### BACTERIOLOGICAL REPORT.

TO establish the diagnosis of glanders in man, the organism recovered from the various lesions or blood of the patient must correspond with the known characteristics of *Bacillus mallei*. The etiological relationship of this organism to the disease was conclusively established in 1882 by Loeffler and Schultz, who not only isolated and cultured the bacillus, but succeeded in reproducing the disease in animals by inoculation. Beside the morphological and cultural features of this organism, some of which are distinctive, the diagnosis of glanders bacteriologically is also dependent upon certain specific biochemical and pathogenic phenomena. The characteristics of the organism found in this case, as compared to those of *B. mallei* may be detailed as follows:

##### I. Morphology.

A faintly staining bacillus, exhibiting marked pleomorphism, varying in length from 1.5 to 4 microns and often showing thread-like forms. Generally they occurred in pairs, end to end, often singly—and were frequently vacuolated. Irregularity in staining was common, and often they exhibited lighter central areas with more intense staining at the poles.

##### II. Cultural Features.

Successful cultures were repeatedly obtained directly from the local lesions. Although a pustular eruption did not occur in this case, and no ulceration of the nasal mucosa was discovered, the organism was recovered in pure culture from three metastatic abscesses occurring at intervals during a continued pyrexia of over eight weeks. Three weeks following recovery from the alveolar abscess—the infecting organism of which was unfortunately not determined—smears and cultures were attempted from an incised swelling about the left ankle joint. A smear of the sero-sanguinous fluid stained by Gram showed no bacteria, although a few distinct colonies appeared on slants of dextrose agar after forty-eight hours incubation at 37 C. These colonies were composed of Gram negative bacilli. Five days later an incision into a deep intra-muscular

abscess of the left calf revealed the presence of considerable odorless haemorrhagic pus, a smear of which by the Gram method showed only an occasional negative staining bacillus. Cultures upon agar slants gave a growth of the same organism as that previously isolated, and resembled tinctorially and culturally *B. mallei*. Four weeks later a typical growth of the organism was again obtained in pure culture from the pus of an abscess at the left elbow, but smears from this lesion were almost entirely free of bacilli. So few and indistinct were they that their presence was affirmed with hesitancy and was corroborated only by the appearance thirty-six hours later of positive cultures.

It is striking how sparse the organisms were in the various smears from the pus of these abscesses. This feature is characteristic of glandered pus, and should immediately excite suspicion in any doubtful case. It is also worthy of note that in each instance the organism was isolated in pure culture, showing no evidence of any secondary infection.

1. *Blood Cultures*: Immediately following the positive cultures from the first metastatic abscess, a blood culture was made. 10 c. c. of blood was withdrawn and quickly mixed with 1 c. c. of a 4 per cent. sodium citrate solution. Almost immediately 5 c. c. of this citrated blood was placed in 200 c. c. of 1.5 per cent. dextrose broth and the remaining quantity distributed on four dextrose agar plates. No growth occurred in any of the cultures after five days incubation. Forty-eight hours later a second blood culture was attempted, and 10 c. c. of blood inoculated directly into 250 c. c. of dextrose bouillon. After forty-eight hours, inoculations were made from this to glycerine potato agar. The original, as well as the sub-cultures remained sterile. A third blood culture also negative, was taken during the development of the elbow abscess.

In acute fulminating glanders blood cultures are almost invariably positive. Chron reports thirteen such cases, in ten of which *B. mallei* was recovered from the blood. In chronic glanders, however, the converse seems to be true, and the three blood cultures taken in this case were all negative despite the fact that the time of culturing coincided with the outbreak of fresh pyæmic foci and marked pyrexia.

2. *Differential Media*.—Cultures of the bacillus were grown on various differential media.

a. *Agar*.—After forty-eight hours at 37° C. the growth on plain agar was grayish white, moist, transparent; and yellowish white by transmitted light. Upon glycerine potato agar the growth was similar but more luxuriant and somewhat viscid and stringy.

b. *Potato*.—Its appearance on potato was typical. A yellowish, glistening, moist, honey-like growth occurred after forty-eight hours,

which in the course of three or four days became coffee brown, thick, raised and viscid.

c. *Turnip*.—Upon the cut surface of yellow turnip prepared according to Marx there appeared at the end of forty-eight hours inoculation a moist, whitish growth and the condensation water was turbid with a heavy milky white sediment. There was a marked putrescent odor to this culture, not present in the control. The sediment of the condensation water contained short, thin, granular and irregular Gram negative bacilli.

d. *Bouillon*.—Plain bouillon was uniformly clouded. No pellicle was observed. In older cultures a stringy sediment formed which on shaking rose as a central rosy core. In dextrose broth in Smith tubes no gas was produced, and only a slight growth took place in the closed arm. A similar growth occurred in Uschinsky's synthetic medium, but it was delayed and less pronounced.

e. *Milk and Whey*.—Litmus milk showed coagulation and very faint reddening at the end of eleven to fifteen days. In litmus whey slight diffuse clouding and faint reddening occurred after fourteen days incubation. In Cohendy whey, which contains additional sugar and peptone, slight diffuse turbidity appeared in forty-eight hours, later becoming more marked with the formation of sediment.

f. *Egg*.—On Dorset egg medium the bacillus yielded a heavy glistening yellowish non-viscid growth which later became opaque and grayish. For luxuriance of growth, this medium surpassed even the glycerine potato agar and would appear to be its most favorable means of cultivating this organism.

g. *Neutral Red*.—In neutral red dextrose agar stab cultures a good growth extended along the entire needle track, and on the surface about the puncture point the growth was spreading and of a pinkish tinge. There was no fluorescence of the medium and no gas production.

h. *Indol*.—Bohme's test for Indol was always negative in bouillon and peptone water cultures.

i. *Sugar Reactions*.—Although it is recognized that these tests on the sugar reactions of the organism are incomplete, they are at least suggestive and may prove of interest. The following sugars were used in litmus-nutrose solutions—according to Barsiekow: dextrose, lactose, saccharose, levulose, galactose and arabinose. With the exception of saccharose, all sugars showed reddening and coagulation. In many instances, however, coagulation was delayed, occurring only after fifteen days incubation.

3. *Optimum Temperature*.—At 44° the only growth observed was on turnip. 14 days incubation at 22° produced a growth on Loeffler serum and on potato. These two temperatures may be



taken as limits while  $37.5^{\circ}$  appears to be the most favorable.

From the above description of the cultural features of the organism on different media its characteristics will readily be recognized as those of *B. mallei*. The most typical of these is the characteristic white growth on yellow turnip and the peculiar growth on potato which is considered distinctive of the glanders bacillus.

### III. *Biochemical and Pathogenic Features.*

Of these the mallein test, the agglutination method and the Straus reaction are important.

1. *Mallein Test.*—Mallein test has been of great service in the diagnosis of glanders in horses. Mallein is analogous to tuberculin, not only in the method of its preparation, but also in the nature of its reaction. It consists of a bouillon filtrate of cultures grown for several weeks, then killed by heat, concentrated and passed through a porcelain filter. It contains the soluble metabolic products of the *Bacillus mallei*. When injected into an animal suffering from glanders it provokes a specific local and constitutional reaction which is pathogomonic. Within a few hours after the subcutaneous injection of mallein in a glandered horse, a painful inflammatory swelling occurs at the site of inoculation which persists for several days. The animal also shows evidence of severe constitutional disturbance; chills, fever and prostration occur. In a typical reaction the temperature rise is from  $2^{\circ}$  to  $3^{\circ}$  F. over the highest normal of the previous day, remaining high for 24. to 48 hours.

While this response in glandered horses makes mallein a diagnostic agent of great importance, its use as a therapeutic measure is of very limited value. Many veterinarians attribute to it certain curative properties, as evidenced by the improvement of clinical symptoms and the ultimate disappearance of the reaction. Unfortunately these favorable indications have been found misleading in the interpretation of results, and frequently merely latent forms of the disease have been reported as cures. Our knowledge of mallein therapy in human glanders is meager. Its use in man was suggested by Bohome in 1893 who was the first to apply it as a diagnostic measure in a human case. In addition to the characteristic reaction, he noted clinical improvement which he accredited to the mallein. This case and five others, one of which came under his own observation, are the only ones which Robins collected out of the 156 cases of chronic glanders reported in the literature. This limited number alone precludes the possibility of drawing any reliable conclusions as to the value of malleinization in man. Incomplete and unsatisfactory as these cases are, they nevertheless are instructive in suggesting the possibility that mallein may excite activity in latent lesions, and in making clear the urgent need of careful investigation of the question of dosage

and standardization in order that the deplorable accidents that attended the early use of tuberculin may be avoided in the mallein therapy of human glanders.

In the present case mallein was not used, but an autogenous vaccine, prepared according to the Wright technic was employed. Although this has been dealt with in another part of this paper, it is of interest to note in passing that a mild response, similar to the mallein reaction, repeatedly followed vaccination.

2. *Agglutination.*—The serum diagnosis of glanders in animals by agglutination was first demonstrated by M'Fadyean and has subsequently been elaborated by various investigators. By many it is considered to be the equal of mallein as a diagnostic test, and to possess the advantage of being applicable in cases where malleinization cannot be employed. It has been adopted by the Austrian Government and the Prussian Army as the official test in the control of glanders. Through the courtesy of Dr. William H. Park, Director of the Research Laboratories of the Department of Health of New York City, we were enabled to test our cultures in the present case by this method. The organism isolated by us, after repeated transfers on glycerine potato agar was agglutinated by the serum of an undoubtedly glandered horse in a dilution of 1:1000. This same serum agglutinated a known stock culture of *B. mallei* "S" in a dilution of 1:10,000.\* The variability of different strains of glanders bacilli in their response to agglutination sera has been noted by numerous investigators, and therefore the variation in the maximum dilutions of these two cultures is not strange. It is also significant that the patient's serum agglutinated the laboratory strain "S" in a dilution of 1:500. Moore and Taylor in summarizing their work on the agglutination method in the diagnosis of glanders found that the maximum dilution of normal serum and of the serum of diseased horses not glandered, capable of producing microscopic agglutination was 1:500. This they affirm is higher than that reported by others and occurred in but very few cases.

3. *Pathogenicity.*—Straus first demonstrated the peculiar lesions of the testicles following the intraperitoneal inoculation of male guinea pigs with virulent glanders bacilli. This method as applied to the diagnosis of glanders in man is practically pathogomonic. When the reaction is positive, a marked orchitis occurs on the second or third day following the injection of the infectious material. The lesion consists of a suppurative inflammation of the Tunica vaginalis, between the layers of which is a purulent exudate from which the bacillus may be re-

\* The author acknowledges his indebtedness to Dr. Marie Grund for her interest, valued suggestions and the actual carrying out of this test.

covered. The parenchyma of the testicle however, is rarely involved or is affected only late in the disease. While a positive reaction affords conclusive evidence as to the nature of the infection, no dependence can be placed on a negative result. Frequently the reaction may be delayed and occur only after the lapse of several weeks. The Committee on Standard Methods for the bacterial diagnosis of glanders therefore recommends that in doubtful cases these animals be kept under observation for two months. The Straus reaction was applied to the present case as follows:

Five male guinea pigs were inoculated intraperitoneally with graduated doses of a twenty-four hour agar culture isolated from an abscess seven days previously.

Pig No. 1 received 1 loopful (2 mm.)

Pig No. 2 received 0.2 loopful

Pig No. 3 received 0.1 loopful

Pig No. 4 received 0.05 loopful

Pig No. 5 received 0.025 loopful

Pig No. 1 which received the maximum dose died within twenty-four hours, too early to show the characteristic lesion. From the peritoneal exudate, however, the organism was recovered in pure culture at autopsy and smears of the fluid stained by Gram showed only a few negative staining bacilli. At the end of forty-eight hours the remaining four pigs all showed a marked orchitis. Pig No. 3 showed involvement on the left side only. The reaction was most marked at the end of seventy-two hours, the overlying skin was smooth, red and shiny. The animals were chloroformed and properly disposed of at the end of this time. This positive reaction demonstrated beyond doubt the correctness of the diagnosis and showed also the marked virulence of the organism.

The principal points of interest in the bacteriological diagnosis of glanders in the present case may be briefly summarized thus:

1. Isolation of *B. mallei* always in pure culture from the local lesions.

2. Characteristic growth on differential media, especially yellow turnip and potato.

3. Negative blood cultures.

4. The difficulty experienced in demonstrating the bacilli in stained preparations of pus or exudate from the lesions, emphasizes the necessity of controlling such smears with cultures. The small number of bacilli present at the site of infection bears evidence of the high virulence and powerful toxin production of this organism.

5. Positive agglutination test both of the bacillus isolated with a known serum, and of a known culture by the patient's serum.

6. Positive Straus reaction, particularly in view of the small amount of infecting material used.

## DISCUSSION ON THE SYMPOSIUM ON VACCINES.

DR. NORMAN K. MACLEOD, Buffalo: In attempting to discuss the papers of Drs. McArthur and Billings, I feel I am considerably at fault in doing so, since I have been following the lines they have laid down. But Dr. McArthur's work is so evidently along the lines which I have been following myself in our laboratory that his findings in regard to the opsonic index particularly are very gratifying. We have heard it said frequently that the opsonic index is of no value from a diagnostic standpoint; it is of no value from a curative standpoint in regard to the dosage of tuberculin. I believe at one time in this country that various sera were sent to various laboratories and it was claimed when these were reported upon that there was a variation in the opsonic indices of from 1.5 up to 1.2, 1.3 and 1.4. This was entirely adverse to what we found in our laboratory. I could not well understand it, but Dr. McArthur's work on this subject in placing the index at 1.8 to 1.2 is so entirely in accord with the laboratory I am associated with that it has been a great pleasure to listen to it.

In regard to his work upon the cervical glands it agrees entirely with what we have done on these glands, but I would like to ask whether in his work they have tried inoculations before their operations. I have so frequently seen cases in children which have been operated on after several months' inoculation; many times we would take these enlarged glands and inoculate for long periods of time to find out whether we could stop any breaking down of the glands or not, and in a few cases we have kept the glands from breaking down, and at subsequent operation they were shelled out in a very easy manner and followed always by the most brilliant results in regard to primary union and so on. I would like to inquire as to his findings in regard to those conditions.

In regard to Dr. Billings' paper it has been a very great pleasure to me to listen to his findings in this respect. I have done a considerable amount of laboratory work upon colon infections of the bladder and allied places under the direction of Dr. Stockton and Dr. Jones, and it is a great pleasure to have listened to Dr. Billings' paper. I want to mention one or two recent cases. Within the last six weeks I have seen three cases of infection following confinement and each one of these almost simulated exceedingly well acute streptococcus infection of the endometrium. In at least two of them there was an accompanying thrombosis, and in each case cultures from the endometrium revealed nothing at all. We could trace no infection anywhere except we found the urine loaded with colon bacilli, and these cases are too early to state our results. I would like to ask Dr. Billings his experience as to whether colon bacillus infections

of the bladder can cause toxic thrombosis or whether it is usual or not? These are the only cases I have seen.

Another question I would like to ask is this, has there been any attempt made before of classifying the conditions which follow upon infection with colon bacilli? Has there been any attempt made to classify the symptoms in the pure colon infections, the paratyphoids, etc.? We have a series of cases in which we have localized infection, such as infection of the mastoid, and we frequently see these local infections after colon bacillus infection of the bladder without any symptoms referable to the bladder. These cases will all clear up with the treatment of the colon bacillus infection. I would like to ask Dr. Billings whether or not any attempt has been made to classify these organisms according to the symptoms?

DR. CHARLES N. DOWD, New York City: May I say a word or two about the relative position of vaccine therapy and operations for tubercular lymph nodes. Most of the observations concerning vaccine therapy seem to hinge on the question of tubercular lymph nodes. Two or three statements have been made with reference to the advisability of operation in some of these cases. It was inferred or implied that operation was a terrible ordeal for tubercular lymph nodes, and that these lymph nodes could be drained, and attention was directed to the good of these operations, particularly after vaccine therapy, with all the ill results of long or protracted sinuses which come after the operations. I agree thoroughly with the advisability of using vaccine therapy in its place, but I also think that instead of giving vaccine therapy for one or two or three months before an operation, that the operation should be done first. Then if there is a possibility of some remnant being left vaccine therapy may be given on that basis. The reason, I believe, for this is that there is an operation which will not take more than half an hour or three-quarters of an hour in most children when taken early, an operation which will relieve these patients in almost every case, an operation which leaves practically no scar, an operation which is followed by 80 or even 90 per cent. of recoveries. Inasmuch as there is this possibility it seems to me we should take advantage of the operation. There is no place in the body that offers as favorable a position for the surgical treatment of tuberculosis as the neck. These tubercular lymph nodes can be taken out easily. They can be removed so thoroughly that they seldom recur. I speak of this after having had quite an extensive experience, because I have operated on over 300 cases, and have followed them from fifteen years down. After the operation recurrences are not common. The danger of the operation is slight; the glands may be removed in the early stage without difficulty and in the later stages the healing is usually fairly prompt.

With these possibilities in mind I would urge that a case with tubercular lymph nodes have operation first, and if it is desirable to use vaccines to do so at a later time.

DR. ALLEN A. JONES, Buffalo: I have listened to these papers with a good deal of interest, and there can be no doubt as to the value of these contributions. Dr. MacLeod's paper stands alone in this that he uses and recommends the mixed vaccines. I would like to ask Dr. McArthur whether he is using mixed vaccines and if so in what doses? I gather from Dr. Billings' paper that tuberculin is being used in ordinary doses in Chicago or in doses larger than those advocated by Dr. MacLeod. The line of thought in Dr. McArthur's paper and in that of Dr. MacLeod's is very similar, and it was splendid to hear such a definite and succinct account of this important part of modern medicine. Dr. Billings has given us a definite and clear account of colon bacillus infection in children as he sees it. We have been given an explanation of many cases of sickness that were not explained by the old investigations, and his remarks about chronic arthritis, myocarditis and myalgia, resulting from chronic or acute conditions—but I think he meant the chronic cases of colon infection of the urinary tract—are illuminating and helpful.

DR. ROBERT T. MORRIS, New York City: I would like to ask Dr. Billings one question. At the present time we are making some investigations with reference to certain intractable leucorrhoeas, particularly in school girls in which the discharge is not virulent, although it appears to me it is secretory in character. I find in these cases colon bacillus infection, and apparently a permanent infection, as the cause for the disturbance, the bacteria growing in a culture medium which is produced from the uteri in certain women who are engaged in laborious work. I wish to ask Dr. Billings if in these cases vaccine therapy would be of service as an addition to our other treatment which is not very satisfactory or effective at the present time?

DR. JOSEPH J. OLIN, Watertown: I just want to say one thing from the standpoint of the ordinary or country practitioner, and that is vaccine therapy is a difficult thing to employ in most cases, if we have not laboratories at our command which we can use. Nevertheless, the average practitioner can employ this method to his own great delight in watching results in cases in which he finds a desperate state of affairs under the ordinary method of treatment. I have in mind a case in my own practice of colon bacillus infection following an operation with an infarct of the kidney where this method came very pleasantly to my aid, and where our local bacteriologist made a vaccine from the culture. The case was not at all responsive to the ordinary methods of treatment, but it was easily treated in this way. I recall also another case of ascending cholangitis from an infected gall-bladder

which was going to the bad and which was treated with mixed vaccines with very quick and gratifying results. The vaccine treatment, although new, is not a method that is entirely beyond the reach of general practitioners, even in places somewhat remote from the great medical centers.

DR. MACLEOD (closing the discussion on his part): In answer to the remarks made by Dr. Dowd, we do not want it to be inferred for one minute that surgeons in the past have not obtained good results in operating on tubercular glands of the neck. But we have had in the past two years so many cases referred to us that have been operated upon, not by ourselves, but by others, with sinuses persisting after operation, that we have suggested the vaccine treatment before operation in some of them. We have seen cases with numerous scars on the neck, and one case particularly I remember of a man who had been operated on two years prior to his being referred to us. He had a sinus in which I think we isolated three or four kinds of secondary bacteria. Furthermore, by raising the resistance of the patient prior to operation the glands have not only subsided but in numerous cases the enlargement has entirely disappeared. The question of operation has been eliminated by the preliminary inoculation with tuberculin. I think in these cases it is wise to give the patient tuberculin two or three months before operation is undertaken, and if the glands do not subside under the inoculation treatment, then I should say go ahead and operate.

DR. L. L. McARTHUR, Chicago (closing the discussion on his part): In replying to the question in regard to dosage, I will say we have been following rather closely the dosage advocated by Wright, that is, 1-1000 of a milligram at the commencement, and gradually increasing up to 1-500 of a milligram of the tuberculin; while the dosage with other vaccines may, as you have seen to-day, be raised to an enormous degree. The use of tuberculin in my hands has not yet justified any such large amounts being given. I am aware that Schlossman has recently written a brochure on the use of tuberculin in gradually increasing doses until an enormous amount is given which would almost frighten one. He uses as much as 30 c. c. or two-thirds of an ounce of tuberculin at a dose for a patient. He gave these large doses to a series of cases in which he had beneficial results with here and there sudden acute miliary tuberculosis and a fatal issue. Old tuberculous processes, absolutely inactive, may be stirred up by the administration of larger doses of the tuberculin.

In regard to the question of Dr. Dowd as to the enlarged glands of the neck, I must confess that in the cases which I have deemed surgical and required operation, I have promptly taken out the glands. All those which refused operation and those which had been already operated

on and came with fistulæ have been treated with tuberculin beneficially. I do not believe that the general profession are aware of the very nice surgical technic that Dr. Dowd has devised for the removal of these cervical glands with as little deformity as possible. But I have used it and am using it frequently.

I would like to emphasize, if I may, the great value of the enormous contribution which Dr. Billings has made to the profession by demonstrating to the surgeons that these old cases of bleeding from the kidney, which we could not determine, as due to a tumor, which we could not determine as due to the hematuria of malaria, etc., can now be classified as bacterial hemorrhages and can be cured by a simple vaccine. I am sure all of us can add to the number of cases of this type since he has taught us why hemorrhage may occur from the kidney without apparent cause.

I would like to say that it would be appropriate for this state, which has proven so generous in other research work, to have a state laboratory for the purpose of determining the form of organism which may be present in the material sent by the general practitioner for examination. If a specimen of blood is sent to this laboratory and the opsonic index determined for it, a vaccine can be made and sent to the individual practitioner suitable for the individual case, and this examination will determine definitely for him whether it is a diphtheria organism which exists in the throat, or determine for him whether the patient has typhoid fever or not. It should be possible for general practitioners to have the advantage of all this good work.

DR. BILLINGS (closing the discussion): In answer to the question propounded I will say that there has not been any attempt made to separate the various changes which may occur from colon bacillus infection of the urinary tract from any other part of the body, nor of any other infection of the urinary tract. Here I think it is very essential for me to utter a word of caution, and this I am going to do because of the fact I have talked of this a little around in Chicago, and neighboring cities, and I find some of our practitioners have gone sort of colon mad, just as we are apt to run afield when some particular thing is brought out. Colon bacillus infection of the urinary tract is very frequent. The number of individuals who suffer from it, as manifested by symptoms, are very few, and it seems to me the longer I study it only those people who suffer from symptoms of the infection with the colon bacillus, without bacteria like the protozoa, staphylococcus, streptococcus, and so on should be treated. There may be morbid anatomy associated with the urinary tract or defective drainage, such as failure to empty the bladder, or a defect in the urinary passages, or some nervous lesion of the body, which prevents good drainage of the bladder.

Or there is long standing infection like a chronic prostatitis due to the gonococcus, and then the colon bacillus present in the urinary tract is apt to drive out the other bacteria. That may be true, but I do not know. It is a mixed infection, and it becomes pathogenic and aggravates the symptoms due to some other organism. I believe the colon bacillus produces many systemic effects when it is there, but I do not believe it produces any more systemic effects than some other organisms in the urinary tract, nor any more than some other organisms in cases of fecal infections somewhere else in the body. Physicians must look more into these infections in the future than they have done in the past. Tonsillar infection, sinus infection, gall-bladder infection and chronic appendicitis are forms of infection upon which we may have engrafted cardiovascular and degenerative changes which may lead to bad and even fatal results. I believe an infected bladder, whether the infection be due to protozoa, staphylococcus, gonococcus or what not,—and many of our arthritides are due to that—should be carefully treated. I had one man under my care for a long time who had as definite a condition of what we call arthritis deformans as you ever saw. He had a chronic prostatitis with the gonococcus present. He had colon bacillus infection at the same time. His bladder drainage was not good. He would not submit to operation to make drainage good. Every time he has vaccination his joints become swollen and painful. In the meantime the joints of the lower extremities have become absolutely well with the deformities that existed before, but the infection had disappeared. Is not that an infection from the focus in the bladder? You will find cases of myocardial degeneration in men of fifty and beyond with angina pectoris. You rid them of the focal infection and they will go on for a long time without any further symptoms. Let us not forget all the other mucous tracts of the body and infection there when a patient suffers from systemic troubles. When we have local trouble in the urinary tract then is the time to look after it.

As to whether this infection will produce thrombosis of the vessels I do not know.

There has been no attempt made to classify the results of such infection, whether local or systemic.

With reference to the remarks made by Dr. Morris, I do not know that leucorrhea occurring in young girls is the result of colon bacillus infection, and the question of the specificity of the colon bacillus as causing this infection perhaps is a debatable one.

I have reported cases of hematuria associated with colon bacillus infection. One swallow does not make a summer, and it is possible these cases of hematuria associated with colon bacillus infection may have been due to some other morbid anatomy. I do not know. I have only

related clinical facts to you for what they are worth, with the idea that others will make further observations.

I am glad some member from the country got up and said that vaccine therapy is practical. And so it is. If you have no laboratory in your vicinity, if you take care and obtain specimens of urine or other material for examination, the material may be sent a great distance and the laboratory work done, and a vaccine made from it. Vaccine therapy is within the reach of us all.

Let me repeat a word of caution. Let us not think that because we find colon bacillus in the urine it is the cause of the patient's suffering and fail to look further for the cause.

### THE TREATMENT OF PELVIC INFECTIONS WITH SPECIAL REFERENCE TO BACTERIAL VACCINES.\*

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THE consideration of the treatment of the infections of the pelvis is a subject that has formed the nucleus of many a medical discussion, and it would seem as though the method of procedure had been so well determined that further discussion would be useless. But the development of medicine is still in its infancy, and new methods and discoveries are following in such rapid succession, that he who rests on his oars will soon find himself last in the race, for what was good yesterday is forgotten to-day. It was not very long ago that ovaries, tubes and uteri were removed as proper treatment for conditions which to-day are handled successfully by less radical methods of procedure. A more accurate knowledge of the many disagreeable features of the artificial menopause has possibly led to this result, and now, with the introduction of antitoxins and bacterial vaccines, there is the probability that radical methods may be further curtailed.

It is not the purpose of this paper to go into the minute details of the common treatment of pelvic infection but simply to dwell at some length upon certain features in the treatment which seem important and new.

We all appreciate the fact that the streptococcus, the staphylococcus, the gonococcus and the bacillus coli are the common parasites that invade the pelvis. We understand that infection may travel by way of the broad ligaments to the tubes, ovaries and peritoneum on the one hand, and by way of the uterus and tubes to the ovaries and peritoneum on the other. Secondary infection may also develop from inflammations of other organs in the pelvis or neighborhood, and infection by direct transmigration of

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the colon bacillus from the intestinal canal is much more common than was formerly supposed. It has furthermore come to my knowledge of late that pelvic infection may be brought about by the pneumococcus of Frankel with consequent localized pelvic peritonitis and tubo-ovarian involvement. The writer is able to report three such cases, the last of recent date which is typical of the rest is herewith appended:

E. C., age 29, married, taken sick July 12, 1909, discharged well October 1, 1909. Diagnosis—pelvic peritonitis, left tubo-ovarian abscess, cholecystitis, acute cystitis, entero-colitis, general septicæmia.

*History.*—Patient has one child born without incident. Eight years ago right ovary removed for cyst. In July, 1909, suddenly taken ill with chill, temperature 103 deg. F., pulse 120, pain in the pelvis, distension and tenderness of the abdomen. Examination showed a good sized exudate behind and to the left of the uterus, very tender, and an excessive uterine discharge. Blood count, 4,500,000 reds, 22,000 whites, polymorphonuclear cells 86 per cent. Smears from the vaginal discharge revealed the pneumococcus. Patient was treated with ice caps, catharsis, douches, and by August 3d symptoms began to subside, but soon returned in another direction with a chill, rapid rise of temperature and extreme pain in the region of the gall bladder, which soon could be palpated. Patient then developed a septic rash (petechial) all over the body followed later by a general urticaria. Blood, 3,800,000 reds, 20,000 whites, 88 per cent. polymorphonuclears. Blood culture positive, showing the presence of the pneumococcus. By August 6th vaccines were made and 25,000,000 injected every second day. August 12th, entero-colitis developed with blood and mucus in the stools lasting for about a week. Nine days following the first injection the temperature again began to fall. The condition of the pelvis steadily improved and the exudate cleared entirely leaving a mass involving the left tube and ovary. Temperature reached normal by August 25th and the patient was apparently on the road to recovery. Injections were stopped August 21st. On August 28th patient was seized with violent chill and rise of temperature to 104.6 deg. F. without any apparent localizing symptoms. Blood cultures again revealed the pneumococcus. Later a well marked case of bacteriuria developed. Injections were commenced again and bladder irrigations started and by September 20th the patient was well enough to be up and about. At present the left tube and ovary are adherent, slightly tender, but the inflammatory condition has largely disappeared.

With the invasion of the pelvis by these various pyogenic bacteria, examination of some two hundred cases leads to the conclusion that the exact role played by these organisms has not been fully determined. We are informed by

pathologists generally, that the more violent varieties of pelvic infection are caused by the invasion of the streptococcus pyogenes. In fifteen cases of the more violent forms of puerperal septicæmia treated in the list above the staphylococcus aureus was found alone in five cases, mixed staphylococcus and bacillus coli in six cases, pure bacillus coli in one and streptococcus pyogenes in three. The following is an instance where the infection would ordinarily have been regarded as a typical streptococcus invasion but which proved by blood culture and cultures of uterine discharges to be pure staphylococcus aureus.

M. W., age 32, admitted October 10, 1908, died October 19, 1908. Diagnosis—Puerperal septicæmia, retained placenta, post-partem hæmorrhage.

*History.*—Four days before admission birth of full term child. Forty-eight hours later, rise of temperature to 104 deg. F. Some distension and tenderness of the abdomen and constipation. On admission temperature 104.6 deg. F.; pulse 130, feeble; respirations 30. General appearance very pale. Abdomen moderate, soft distension confined to the region of the pelvis, slight tenderness. Uterus one finger below umbilicus, tender, soft, considerable bloody, foul-smelling discharge. Adnexa palpate normal except tenderness in the region of the right broad ligament. Blood, 2,400,000 reds, 18,000 whites, 92 per cent. polymorphonuclears. Uterine culture, staphylococcus aureus. Urine, trace of albumen, few granular casts.

*Treatment.*—Curettage and piece of placenta removed from region of right horn. Saline irrigation. Twenty-four hours later vaccines commenced and continued daily to death. Temperature range 103.5 deg. F., general condition becoming gradually weaker. Vaccines had no apparent effect. Two days before death the patient was transfused according to the method of Crile. Following this there was a sudden fall in the temperature for about twelve hours, but no other result. Thus it is seen that the violence of the infection does not depend so much on the variety of the bacterium as upon the particular strain and virulence of the invading germ.

In the determination of the treatment of the various conditions resulting from the introduction of these organisms into the pelvis, we must first remember that the pelvic organs—the uterus, the ovaries, tubes and adjacent viscera, must be considered separately, and, second, that we have to deal with (a) simple inflammation, or (b) a suppurative process resulting in disease of the uterus and tubes, or more rarely ovaries, separately maybe, but as is generally the case, collectively and associated with peritoneal irritation of a similar nature, agglutinating all in a conglomerate mass termed the pelvic exudate.

The pelvic organs naturally by their location are so situated in the abdomen that they can be

more readily walled off by protecting adhesions than other organs in the abdomen, and, generally speaking, the virulence of the invading germ appears to be of a milder character than that attacking the other organs of the peritoneal cavity, such for instance as the gall bladder and appendix. These two facts have led to the time-honored rule among gynæcologists that it is better policy to wait for the acute inflammatory process to become subacute or chronic before attacking them surgically, with the conviction that, when the disease is attacked, the process will have sufficiently subsided and have become so localized that it can be more easily attended to and without the destruction of as many organs; and too, what is of much more importance, the resulting pathological condition of suppurative inflammation though present and active is most always found to be germ free, thus allowing the spilling of pus in the pelvic cavity with a certain degree of impunity. That this general method of procedure is rational and advisable in most of the severe inflammatory conditions of the pelvis is beyond cavil, yet there are certain exceptions to this ruling, to which attention will be called.

Simple inflammatory conditions generally respond to rest, the ice cap, free catharsis and later the douche and tampon. Curettage is necessary where the process is associated with endometritis or retained membranes. Special treatment is required, depending upon the etiology of the particular inflammation. The invasion of the gonococcus in the pelvis through the uterus into the tubes reaching the peritoneum finally is very often of a violent nature, resulting in localized suppurative inflammation of tubes or tubes and ovaries with pelvic exudate, even rarely resulting in general peritonitis. The patient is put to bed, ice applied to the abdomen, antiseptic douches are administered, and, as the process subsides, the douche and tampon are used. The disease results in occluded tubes or goes on to chronic inflammation or abscess formation. Sterility follows. There is a large class of patients, however, and it is this class to which attention is called, where the onset of the disease is slight, where the abdominal pain is very mild in character, the patient simply complaining of a "stitch" low down on one or both sides of the pelvis, where the temperature is up a degree or normal, and, aside from a slight degree of malaise, the patient is able to go about as usual. The condition disappears in a short time or is passed over unnoticed, and the patient gets well but is sterile. The inflammatory process has resulted in adhesive inflammation of the peritoneum, in the vicinity of the tube ends, the fimbriated extremity has become adherent to the ovary and has so remained, thereby causing sterility. These cases are quite common and are often overlooked unless the physician is alert. At the time of infection uterine smears will re-

veal the gonococcus. Later, where a possible history of infection is obtained, the gynæcologist is warranted in advising laparotomy for the treatment of sterility, freeing the tube ends with or without resection, as the condition demands. Another condition of simple inflammation, often overlooked and the cause of sterility, is in that class of patients where there has been continuous bleeding from the uterus for some long time as a result either of incomplete abortion or severe chronic hypertrophic endometritis. Seven cases are here reported, in all of which the same pathological condition was found associated, as it happened with conditions which called for laparotomy. On examination of the pelvis at the time of operation it was found that the two ends were plastered to the ovaries by granular fibrin, and that in the immediate vicinity of the tube ends and on the ovaries was to be seen more or less old blood clot. The tubes themselves and the immediate broad ligament were somewhat reddened and swollen. The content of the tubes was a moderate amount of bloody serum which proved sterile to culture and negative to smear in each case. Whether the old blood clot was due to an inflamed condition of the tubes resulting from the retained secundines or chronic endometritis, or whether it was the blood forced from the uterine bleeding through the tube setting up a "foreign body" localized peritonitis, it is hard to say. It is well to remember, however, that such uterine conditions may cause occlusion of the tube ends, thus explaining cases of sterility remaining after the local uterine condition has been properly treated. Here, too, as in the first class of cases reported, laparotomy is indicated for the relief of sterility with a good chance of success. It is hardly necessary to urge these cases of sterility following a febrile abortometritis should be curetted as early as possible in order to avoid this complication. That the condition of tube occlusion is more common than we imagine is certain, and it explains many of these cases of sterility, following afebrile abortion, severe labors and endometritis.

Turning our attention to the more violent form of pelvic infection, terminating in general peritonitis or pyosalpinx, ovarian abscess and pelvic exudate, success in treatment depends largely upon the violence of the invasion. Clinically we recognize the following conditions: (1) Acute puerperal septicæmia with slight pelvic involvements; (2) puerperal septicæmia with spreading peritonitis; (3) localized pelvic abscess; (4) localized pelvic exudate; (5) pyosalpinx, tubo-ovarian abscess, metritis and para-metritis. The treatment in the early stages of all conditions is the same—bed, ice to the pelvic region, free catharsis, liquid food and stimulation if necessary. As the temperature recedes and the process localizes itself hot douches are commenced, and after the temperature reaches normal tampons or boro-glycerin or ichthyol and glycerin

are in order. If the infection is due to the introduction of pyogenic germs during labor, to saprophytic invasion from retained membranes, or to the use of dirty instruments, the cause should be removed by uterine irrigation with physiological salt solution, the removal of placental remnants, etc., but under no circumstances should the sharp curette be used. Repeated uterine irrigations are to be condemned and the use of antiseptics in uterus is of no value. There should be no drainage with gauze packing. Where the gonococcus is the cause of the trouble the uterus should be left severely alone.

In treating conditions of puerperal septicæmia where the infection is general from the start, where the pelvic condition is only slightly in evidence—some tenderness, slight distension, localized and soft—the prognosis is very bad indeed. These patients have a characteristic waxy appearance, as though suffering from extreme anæmia, the temperature ranges from 103°-106° F., they are either very apathetic or in active delirium, and the heart action is overpowered by the septic poison from the beginning. The treatment, aside from cleaning and washing the uterus, is almost hopeless. Bacterial vaccines are of no value whatsoever, and transfusion has thus far proved useless. Where the septic condition, however, is not so violent and where there is evidence of spreading peritonitis, laparotomy with drainage and possible hysterectomy will sometimes save a life.

There is a class of cases seen clinically following puerperal infection where the disease becomes well localized so that by the end of three or four weeks upon examination we find two masses well circumscribed, elastic to touch, on each side of the uterus, high up, sometimes even found in the iliac regions. The abscesses develop in these regions because the pregnant uterus has carried the tubes and ovaries out of the pelvis, as it has grown, and the tubes have become infected and adherent before the involution of the uterus could restore them to their usual position. They are collections of pus surrounded by matted intestines and omentum, in the middle of which may be found the open fimbriated extremity of the tube discharging into the abscess cavity. In the treatment of this condition it is not good policy to wait for a subsidence of the process, for by simply opening and draining these cavities, the process resolves, and the tubes are often left patent, whereas, if left to nature, they eventually close and generally have to be removed or resected. A small intermuscular incision over the abscess, drainage of the contents with rubber tube drainage for forty-eight hours will often be all that is necessary. Simple vaginal drainage will also answer when the abscess happens to be low down. To emphasize this condition the following history is given: E. L., 27 æt.; married; para. 2. Fifty-four hours following the delivery of her child patient began to develop symptoms

of pelvic infection, and by the end of the week two large, hard masses were felt on either side of the uterus in both iliac regions. All the evidences of septic infection were present, and the usual treatment of uterine cleansing, local cold, etc., was adopted. The patient remained in bed for twenty-three days with little or no subsidence of the symptoms, except the masses became more elastic and were more easily palpated through the abdomen. It was decided to operate. Intermuscular incisions after McBurney's method were made over the masses about an inch and a half in length; and the abscesses opened and drained. The tubes on both sides were patent. Drainage of rubber tubes was introduced for forty-eight hours, after which the wounds were allowed to close with the subsidence of the symptoms. In two months all evidence of infection had disappeared, and in six months the patient became pregnant and was delivered later of a full-term healthy child. She is at present pregnant again.

The class of patients in whom the acute symptoms of infection has subsided, but who continue ill with either chronic septicæmia or pyæmia or who go about with pyosalpinx, tubo-ovarian abscess and a uterus the seat of chronic metritis and endometritis demands careful consideration. Here the conservative gynæcologist will often by his special experience accomplish brilliant results. As we have often before urged, we again wish to extend a plea for conservative work. A compilation of the post-operative sequelæ following pan-hysterectomy in some two hundred and fifty cases ten years ago revealed to me a condition of affairs not mentioned in the ordinary textbooks. The percentage of women suffering from one or more of the disagreeable symptoms of the post-operative menopause was so high, and the condition of many of these women so serious, that it seemed advisable to leave ovaries, even at the risk of possible future operation. If we remember that the ovary in a very large percentage of the cases is only the seat of a sympathetic simple inflammation, and that even though it is badly bound down in the inflammatory mass, it will recover its healthy condition when freed; then many an ovary will be saved. And so with diseased tubes, knowing that the pus is nearly always sterile, resection will often suffice. In the unfortunate conditions, however, where tube and ovary must be removed, extirpation of the uterus also is to be advised, provided the patient is in good condition, thereby ridding the patient of an organ that is functionless and often the seat of metritis and endometritis.

And now a word about bacterial vaccines. For the past two years the writer has been at work endeavoring to classify as near as possible the variety of pathological conditions for which vaccines are of value. When we take into consideration the varied resistance of patients to infection, the different kinds of strains of bacteria,



and consequently the difference in the severity and mode of attack of each, we can readily see why our results are so difficult to classify and the value of treatment so uncertain. Up to date, however, it would seem that the greatest good can be accomplished in the treatment of subacute or chronic pyæmia or septicæmia resulting from pelvic infection. The acute violent cases of puerperal sepsis do not respond to bacterial vaccines, for there is little or no resistance to begin with and none can be generated. Where, however, the patient gives some evidence of resistance to infection, even though moderate, it would seem that vaccines are valuable. As has been mentioned, success does not depend so much on the variety of the bacterium, for we find mild and severe infections with all varieties, but more particularly on our ability to induce opsonins in our patient on the one hand, and the virulence of the invading germ on the other. For it is the opsonin that prepares the bacterium for digestion by the phagocyte.

Knowing the tendency of pelvic infection to localize itself and gradually subside in the less severe conditions, it is hard to determine positively how much good we do with vaccines, but in severe conditions, which have responded to no treatment, the value of the vaccine can often be estimated. Our measure of value lies first in the differential leucocyte count and second in the improvement of the patient. The so-called opsonic index is of little value. In all we have had under observation forty-eight cases of pelvic infection of all varieties and conditions of severity. Six of these were of the type of puerperal septicæmia, and they all died; eight cases were conditions of chronic pyæmia or septicæmia, and all recovered; the others were of varying degrees of sepsis, where operative treatment was found necessary, but where following operation the temperature continued for some time in spite of ordinary treatment without any evidence of undue local condition. These patients recovered. For purposes of illustration a marked condition of pyæmia where recovery appeared to be largely due to the injection of vaccines is appended, *i. e.*:

CASE II.—J. E., aged forty-six years, admitted June 5, 1908; discharged October 26, 1908. Acute gangrenous appendicitis, ileocolic trombosis, pyæmia, abscess of liver.

*History.*—One attack of appendicitis in 1907. Several previous attacks of pain in abdomen. June 5, 1908, pain in abdomen, nausea, distention abdomen, temperature and pulse normal. June 6, 1908, chill; temperature 106, pulse 102. Marked symptoms of peritoneal irritation, possibly appendicular. Blood count: 4,800,000 reds, 8,000 whites, 91 per cent. polymorphonuclear. Repeated chills, irregular as to time, receding abdominal pain, general distention, soft, slight tenderness in R. I. F., diarrhea up to June 9. June 9, blood: 4,600,000 reds, 10,800 whites polymorphonuclear, 92 per cent. Operation re-

vealed gangrenous appendix, which was removed and wound drained. Abdominal conditions immediately improved, but chills continued, though temperature fell in next three days to 99°-101° F. June 15, chills became worse and temperature again rose, and for two weeks symptoms of typical pyæmia were present; temperature range, 99°-105° F. Abdominal symptoms continued to improve, though wound discharged very freely. During this time treatment was supporting. Intravenous injections of collargulum were given and patient was rubbed with unguentum Credé. June 20, blood culture negative; red cells, 3,800,000; poikilocytosis; whites, 9,900; polymorphonuclear cells, 86 per cent. Microscopic examination of wound discharge revealed mixed staphylococcus and putrefactive organisms. June 30, vaccine injections were commenced. On account of difficulty in proper isolation of bacteria from wound pus, stock streptococcus longus was used, beginning with 40,000,000 and increasing to 200,000,000 by July 13. Patient continued to get rapidly worse. July 16, blood culture negative; reds, 2,712,000; whites, 20,000; polymorphonuclear cells, 85 per cent. Urine contained trace of albumin and granular casts July 14, Aronsen's antistreptococcus serum commenced. Only effect was to develop negative phase and increase wound discharge immediately after injection. Temperature ran somewhat lower. By this time patient was *in extremis* and it seemed impossible to save life. Blood cultures were negative and were repeatedly taken. The laboratory was unable to isolate bacteria due to the constant appearance of the hay bacillus contamination. July 15, forty days after onset of disease, two varieties of bacteria were isolated—*B. coli* and *B. mucosus*—and vaccines were made; 35,000,000 *B. coli* were injected, and following this patient states that she felt much better. For the next four days patient gradually became worse, however. July 19, 40,000,000 *B. mucosus* were injected and again on July 20. Then improvement all along the line was noticed and chills stopped. Injections were given every fourth day. Temperature range dropped to 99°-102° F. July 27, patient complained of pain in epigastrium. Blood count: red cells, 3,100,000; whites, 20,000; polymorphonuclear, 80 per cent. July 29, liver aspirated; negative result. August 1-7, temperature range, 99.4° to 102.4° F. Pain in liver region continued. August 11, *B. mucosus* increased to 75,000,000; solid food commenced. August 17, liver increased in size. August 22, operation, liver abscess drained; temperature, 100°-103° F., pulse, 112-130. General condition of patient much improved in spite of abscess. Vaccine increased to 110,000,000. August 26, temperature normal, pulse 104-110. September 13, patient has continued to improve. September 18, rise of temperature to 100.8° F. and pulse 116, with abscess in appendix wound opened and drained.

September 6, allowed up—three months from onset of disease. Vaccines were continued at week intervals until September 30. The pulse continued rapid, falling gradually and reaching normal November 2, five months from onset of the disease. September 4, two days before getting up, the blood showed reds 3,946,000, whites 12,000, polymorphonuclears 74 per cent., hemoglobin 83 per cent., size and shape of cells normal. At the time of the appendicular wound abscess the blood was: reds 4,150,000, whites 10,000, polymorphonuclear cells 80 per cent., hemoglobin 83 per cent. The last blood count taken four months from onset of the disease was: reds 4,800,000, whites 8,000, polymorphonuclear cells 73 per cent., hemoglobin 90 per cent.

#### Conclusions.

Vaccines do not seem to cure infection, but simply aid in stimulating increased resistance and so combat sepsis, often turning the tide in favor of the patient. They are indicated especially in conditions of poor resistance, as evidenced by a comparatively low leucocyte count with a high polymorphonuclear count. Too much reliance, however, must not be placed on the leucocyte count, for it, too, is very uncertain. The method of administration is by hypodermic injections, given deep into the gluteal region. The dosage is as yet in the stage of experimentation. Formerly it was the custom to give large injections every fourth day. Of late, injections are given daily, but in smaller doses, and with apparently more satisfactory results. It would seem that in order to overcome the constant reproduction of bacteria at the site of infection, a constant prodding of the opsonius is necessary, thereby calling for daily injections. At present we are giving the following doses of bacterius, all autogenous. The writer has had no success with "stock" vaccines: *Staphylococcus aureus*, 75,000,000 to 200,000,000; *streptococcus*, 25,000,000 to 100,000,000; *bacillus coli*, 40,000,000 to 75,000,000; *bacillus mucosus capsulatus*, 40,000,000 to 200,000,000; *pneumococcus*, 25,000,000 to 40,000,000; *gonococcus*, 6,000,000 to 40,000,000. Results have been more satisfactory with the *staphylococcus aureus* and the *bacillus coli*, and less with the *streptococcus*. Many infections are found to be mixed infections, in which cases injections of mixed bacteria are given. Attention is called to the very great frequency with which the *bacillus coli* is found in pelvic infections. The treatment of pure *gonococcus* infections with vaccines has been very disappointing, especially in conditions of gonorrhœal urethritis. Disagreeable symptoms following injections are uncommon. When they do occur, one injection should be omitted. The strength of the injection should be gradually increased, depending upon the patient's ability to withstand the possible negative phase.

The routine method for preparing vaccines may be of interest. At the time of operation

cultures and cover glass smears are taken from the diseased area. If there is no exposed area of disease blood cultures are taken or cultures from the uterine discharges. As soon as a growth appears the germs are isolated and a second growth obtained. From this a small portion is taken and killed by heat. These dead bacteria are now placed in sterile salt solution, physiological strength, and the germs in a certain area of solution counted under the microscope. The dose depends upon the number of bacteria in a given c.c. of fluid.

### THE ADEQUACY OF THE PRESENT DAY TREATMENT OF SYPHILIS TESTED BY THE OCCURRENCE OF SYPHILITIC DISEASES OF THE NERVOUS SYSTEM.\*

By JOSEPH COLLINS, M.D.,

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THERE is no disease so competent to cause suffering, misery and death as syphilis. There is no major disease that is treated in such off-hand casual fashion. Such is my conviction after twenty years' close contact with syphilitic diseases and diseases that have their origin in syphilis.

There would seem to be a widespread belief that syphilis is adequately treated by giving some preparation of mercury in small doses during several consecutive months, although no evidence of the effect of such medication is manifest. Furthermore, it would seem to be very widely held that iodide of potassium is a genuine anti-syphilitic agency, and not, as I in common with so many others maintain, a substance which is potent to dissolve and dissipate syphilitic exudative and inflammatory products.

If syphilis were adequately treated diseases that have their origin in it should decrease. That they are not decreasing cannot be proved. Their apparent increase may be due to the fact that they are diagnosed with greater readiness than they were formerly.

There are certain diseases of the nervous system, such as tabes, general paresis, a variety of myelitis, meningitis, endarteritis and neuritis that flow directly out of syphilis. This fact is so universally conceded, that no attempt will be made here to give it statistical support, nor shall I debate the question whether or not certain of these diseases, such as tabes and general paresis, ever flow from other sources than syphilis. It is generally admitted that an antecedent infection of the blood by the spirochætæ of syphilis is the essential preparation for these diseases. Until recently, great effort has been made to prove that tabes and paresis were not syphilitic diseases

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in the strict sense. That is, that the morbid process in the spinal cord and brain is not structurally of syphilitic material. They are often called parasymphilitic diseases.

It has been assumed that the syphilitic poison in the system causes a characteristic histological reaction evidenced by what is known as the syphilitic exudate, and by the formation of tissue of extremely simple organization. This assumption is purely gratuitous; and one of the results of the chemico-pathological investigations initiated by Bordet and Gengou and carried on by means of the procedures suggested by Wassermann. Noguchi and others, has been to demonstrate that the syphilitic poison is active in the system of the individual whose tissues reveal so-called primary degenerative disease such as tabes. It may then legitimately be held that it is the cause of such degeneration.

Soon after I first became interested in the study of nervous diseases, being then in the way of observing a large number of cases of organic diseases, I was struck by what seemed to me a most inexplicable state of affairs relative to syphilitic and so-called parasymphilitic nervous diseases, viz., that such diseases developed as soon after infection, and as virulently, if I may use that term, in those who had received what is considered to be adequate treatment for syphilis, as it did in those who had received little or no treatment. At that time I published a study of this subject (*The Post Graduate*, 1895). This paper was never widely noticed or commented upon.

The only conclusion that I could draw from the facts set forth in that paper was that so-called adequate treatment of syphilis was in many instances inadequate, otherwise diseases of the nervous system that flow out of syphilis would not develop. Since that time I have sought to inquire carefully into the treatment that has been given to patients who have come under my observation seeking relief from syphilitic diseases, especially tabes, general paresis, syphilitic spinal paralysis, pachymeningitis, disseminated cerebrospinal syphilis and cerebral and spinal thrombosis at the time and soon after infection. It has astonished me to find that nearly all of them had been given iodide of potassium often in large doses in the early stages of the disease and that in the vast majority of instances the mercury given was administered in pill form. In one hundred consecutive cases of tabes, there was a distinct history of syphilitic infection in seventy-four. The average age of infection was twenty-five; the average age when symptoms of tabes developed was thirty-seven; the average duration of treatment at the time of infection was five months. These figures are not of much value in estimating the adequacy of treatment to prevent post-symphilitic disease, for a few cases that had had no treatment at all bring the average duration of treatment down very low.

It is impossible to determine the treatment which patients with general paresis have had with as much accuracy as one can determine it in tabetics. The mental state of many of them is such that slight reliance can be placed upon their statements. This accounts also for the fact that a history of syphilis is not obtained so often as in tabetics. In one hundred consecutive cases seen in hospital and private practice acknowledgment or history of syphilitic infection was got only in sixty-three instances. In many of those in which there was no history of syphilis a positive Wassermann reaction was obtained.

In thirty-eight cases of that form of subacute and chronic myelitis known as syphilitic spinal paralysis, a history of infection was given in thirty-one instances. The Wassermann reaction was positive in five of the remaining seven cases, and in three cases the diagnosis was made though there was no history of syphilis, this before the Wassermann test was discovered.

Of these thirty-eight cases nineteen had received treatment for nearly a year, seven had received no treatment after the local manifestations had disappeared, and five had treatment for a few weeks. In every instance in which an intelligent account of the treatment given could be obtained, it was learned that iodide of potassium had been taken.

It is difficult to believe that the practice of giving iodide of potassium to patients suffering from syphilis from the very beginning of the disease is so common as my statistics show it to be. I could cite scores of cases coming from different states in which iodide of potassium was given from the day the patient put himself under the care of the physician. I shall content myself with a few examples.

CASE I.—Mr. X., single, 37 years old, seen with Dr. Beverly R. Tucker, Richmond, Va.; three years ago had a sore which was considered, after some observation, to be syphilis and given treatment consisting of 1-32 grain of biniodide of mercury and 15 grains of iodide of potassium, to be taken three times a day. This was kept up for six months. After an interval of two months it was resumed for about five months. His present illness developed in the following way: September and October, headache and soreness in the back of the head. November 27th, vertigo, staggering, stumbling. December 1st, left hemiparesis. December 2d, left hemiparalysis. December 3d, right hemiparesis; later, hemiparalysis. Dyspepsia, dysarthria, phrenic nerve phenomena, dyspnoea and laryngeal paralysis. Diagnosis, pseudoocular paralysis of syphilitic basilar endarteritis.

CASE II.—Mr. X., seen with Dr. J. F. Erdmann. When 22 years old he had syphilitic infection, the ordinary local lesion. The physician cauterized the lesion, gave him pills, one to be taken three times a day, and a salt-tasting medi-

cine ten drops in a dose, which was to be increased to sixty drops three times a day. This was continued for six months, the medicine being diminished or interrupted when disagreeable symptoms arose. At the end of that time he was advised to continue the medicine for another six months.

When he was 38 years old, he was operated upon for an acute inflammation around the cæcum; the wound did not heal. At this time Dr. Erdmann was asked to give an opinion concerning his condition, and suspecting that the antecedent syphilis had something to do with the retardation of his recovery, advised mercurial injections, and soon after asked me to see him, because of the symptoms of brachial neuritis. The Wassermann reaction was positive after some weeks despite intense mercurial treatment. Within six months he had recovered, and now, a year later, the Wassermann reaction is negative, and there is no evidence of disease of any kind.

CASE III.—A man, now 30 years old, became infected with syphilis when 24. Almost from the beginning he displayed phenomena of great depression and self-concern. Within a year he tried to commit suicide, and within two years he had evidences of tabes with such mental symptoms that it was thought it was in reality taboparesis. His mental symptoms subsided, and now he is an example of true tabes. His physician stated he had treated him for the original infection with mercury and iodide and had him more or less constantly under such treatment, but it could not be determined that any manifestation of such medication had occurred save iodism.

A fourth case is that of a young man with syphilitic spinal paralysis. He contracted syphilis during his college days. He consulted a physician at once who, he writes, gave him "mixed treatment" for nearly two years. Symptoms of subacute myelitis developed when he was 29 years old. He has practically completely recovered under intensive mercurial treatment.

I have been forced to conclude that syphilis has been and is treated in this country to-day not with mercury, as many teachers of this branch of medicine say it should be treated, but with mercury and iodide of potassium, the former administered in a desultory and inadequate manner; and if I may be permitted an opinion, based upon an experience with patients from all parts of the country, more reliance is placed upon the iodides as a curative agency than upon mercury.

"Students are very rarely well instructed in syphilis; they are almost never thoroughly instructed," say Osler and Churchman (Osler's *Modern Medicine*, vol. 3, p. 503). If this is true, it may account for the fact that syphilitic nervous diseases seem to be increasing rather than decreasing. It would seem to me that the chief explanation for the occurrence of syphilitic nervous diseases is that the specific action of mercury in syphilis is not generally accepted or be-

lieved, and that there is an inherited and acquired belief that iodide of potassium has a specific action in syphilis, and this in face of the fact that most modern syphilographers of the present day, especially in this country, are emphatic and direct in maintaining that the former is the real specific in the disease. Amongst these, Piffard is the most conspicuous example. As early as 1876 he pointed out that mercury was the agent that cured syphilis, while iodide of potassium was the vehicle which removed some of the manifestations of syphilis. It would seem now to be proven experimentally by Roux and Mechnikoff, who have succeeded in inoculating anthropoid apes, that the effects of the inoculation could be prevented before the virus gained entrance to the general system by the application of mercury. In other words, that mercury applied locally destroys the spirochætæ. They even go so far as to say that mercury is a greater specific against the local disease than against the general disease.

I cannot enter into a discussion of this subject here, because it would necessitate citation of the experiments of Neisser which seem to show that injections of mercury immediately after the inoculation of the syphilitic virus prevents neither the development of a chancre nor the general distribution of the virus throughout the body. It would also necessitate opening that interminable inquiry: whether the chancre is a local or a constitutional manifestation; or put in another way, when does it cease to be the former and become the latter? Finally, it would necessitate a review of a similarly unanswered question: When shall the treatment of syphilis be begun? It would be fortunate if we could forget and unlearn all we have been taught by tradition concerning these matters, and begin with our present-day means of acquiring information concerning them. I assume that it is admitted to-day that the organism of Schaudinn may gain entrance to the system in various ways, and that at the point of entry, neither the chancre, chancroid, preputial herpes, venereal wart nor gonorrhœal inflammation need exist. Furthermore, that one of these and more particularly the sore known as chancre not only marks the focus of infection but that its secretions contain the spirochætæ which can be detected by suitable examination. This being a fact, the time to begin the treatment of syphilis is when the spirochætæ are found, and the substance with which to treat it is that which has a specific action upon the spirochætæ—mercury. Now, so far as I am able to determine by examination of the work of the authorities, it has not been shown that iodide of potassium has any specific effect upon the organisms. I call attention, however, to the fact that Lesser has recently published an article (*Deutsche Med. Wochenschrift*, XXV, 1909, p. 379), in which he offers some evidence that negative Wassermann reaction may develop in syphilitic subject after the administration of the

iodides. Since the days when its use was first popularized by Ricord, it has been stated and restated that it is mercury which cures syphilis, iodide which erases the symptoms. When I state that the iodide of potassium is not an anti-syphilitic agency, I do not mean to contend that it is not useful in the treatment of syphilis and of wondrous efficacy in overcoming some of the manifestations of syphilis, particularly so-called gummatous formation. It would be folly to deny what is not only common knowledge of all physicians, but what is every day being demonstrated anew. No more do I mean to deny that, in certain cases of malignant precocious syphilis, the disease does not yield to treatment until iodide of potassium is added to the medication. But because iodide of potassium is a most potent and sometimes marvelous agency to cause absorption and dispersal of an exudate which is pathognomonic of the existence of spirochætae, this is no evidence that iodide of potassium has any action upon the spirochætae themselves. Though a certain chemical may, for example, negate the action of, or dissolve and dissipate a substance which is formed in a reservoir, polluting the water to the detriment of all who drink thereof, it does not follow that that same chemical scattered lightly upon the soil of forest and hillside from which the reservoir drains its supply will prevent the formation of the deleterious substances.

I venture to believe that iodide of potassium is not an anti-syphilitic agency in the strict sense of the term. There is no evidence that I have encountered to indicate that it has destructive effect upon the spirochætae. I am aware that there are certain cases in which the Wasserman test continues to give positive reaction until iodide of potassium has been added to the medication, but that does not prove that it is inimical to the life of the spirochætae. Nor am I aware that satisfactory evidence has been offered to prove that antibodies disappear under the use of iodide of potassium alone. Furthermore, I am of the opinion that not infrequently the use of iodide of potassium during the early stages of syphilis is deleterious in so much as it impairs the patient's vitality and interferes with that condition upon which the cure of syphilis is dependent—the reaction which takes place in the patient's tissues through the administration of the curative agency—mercury.

The other point that I wish to make is that so long as it remains the custom which it would seem is now well-nigh universal, to administer mercury by the mouth, we cannot hope to know whether or not a sufficient amount of mercury is absorbed to successfully combat the action of the spirochætae and to annihilate them. The occurrence of pyalism and other disturbances of the digestive tract is no indication that mercury is being taken in doses adequate to combat the

disease. Many individuals present such indications of the toxic effects of the drug before any considerable quantity is taken. An idiosyncrasy to the drug or an intolerance of it, does not signify that the system is impregnated, yet how often we find in the history of a given case that on the occurrence of such symptoms the amount of the drug was materially diminished or some other substance substituted for it. We cannot possibly know how much mercury is absorbed into the system unless we rub it through the skin or introduce it hypodermically. In that way alone can we judge how much mercury is being put into the system, and satisfy ourselves that an amount has been absorbed adequate to cure the disease or kill the spirochæta pallida.

The adequate treatment of syphilis is not the administration of so many grains of mercury and so many ounces of iodide of potassium, nor yet is it encompassed by "taking mercury for a year and potash for six months." It is encompassed by getting such sufficient amount of mercury into the system as will prevent the propagation of the specific organisms and the formation of the antibodies, and the way to tell if this is being accomplished is by the application of the Wasserman test. Not until we get repeated negative reactions are we justified in discontinuing mercurial treatment.

Finally, the individual who has syphilis is an important factor to consider if it is our ambition to cure syphilis and to prevent syphilitic nervous diseases. How many of them, even the most intelligent, appreciate that it is of vital importance to receive prolonged, and oftentimes debilitating and distressing treatment? Now that we have a safe therapeutic test in the Wasserman reaction every patient should be imperatively urged to submit himself for such examination at least once a year for five years after he is discharged by his physician.

In conclusion I wish to state my belief, based upon my entire experience and the consideration which I have given to the disease and its sequelæ from a theoretical standpoint, that we shall be able materially to diminish the occurrence of syphilitic nervous diseases by advocating the use of mercury as a specific for syphilis and depreciating the use of iodide of potassium save as an absorbifacient of gummatous tissue.

It is no part of my purpose to decry the therapeutic property of the salts of iodine. Were it so, I could marshal an array of facts to prove their injuriousness when given in comparatively small doses (40 to 60 grains a day) for a protracted time. I appreciate the therapeutic possibilities of the iodides, but I am convinced that the therapy of organic nervous diseases, save gummatous formation upon and within the nervous system, would be more satisfactory if the salts of iodine were no longer in use.

THE WASSERMANN AND NOGUCHI  
COMPLEMENT—FIXATION TESTS  
IN LEPROSY—REPORT OF  
60 CASES.\*

By HOWARD FOX, M.D.,  
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THE first to obtain a positive Wassermann reaction in a case of leprosy was Eitner<sup>1</sup> in 1906. A similar report was made by Wechseltmann and Meier<sup>2</sup> nearly two years later. Since then it has been found by a number of observers that leprosy quite frequently gives a positive reaction.

In testing twenty-six advanced cases of the disease, Slatineanu and Danielopolu<sup>3</sup> found twenty strong positive, four moderately positive, and two weakly positive reactions. Jundell, Almkvist, and Sandman,<sup>4</sup> in a series of twenty-six cases obtained four strong and four moderately positive reactions. In two cases the result was unsatisfactory, while in the remaining sixteen cases the reaction was negative. Of the positive cases, five were of the tubercular and three of the maculo-anæsthetic type. From this the writers conclude that the occurrence of the reaction does not depend upon the type of the disease, *e. g.*, whether tubercular or anæsthetic.

Meier,<sup>5</sup> on the other hand, in a series of twenty-eight cases, found positive reactions only in the tubercular type of leprosy. All of the anæsthetic cases gave negative reactions. The number of cases of each type was unfortunately not stated. Similar results were obtained by Bruck and Gessner,<sup>6</sup> who found positive reactions in five out of seven tubercular cases and negative reactions in three anæsthetic cases. Positive reactions have also been obtained by Gaucher and Abrami<sup>7</sup> in eight cases and by Frugoni and Pisani<sup>8</sup> in nine out of eleven cases of leprosy, the type of the disease, however, not being stated.

Eitner<sup>9</sup> was also the first to obtain complement-fixation in leprosy, using an extract of leprosy tissue as antigen. Similar results were later reported by Slatineanu and Danielopolu,<sup>10</sup> Gaucher and Abrami, Sugai,<sup>11</sup> Pasini,<sup>12</sup> and by Frugoni and Pisani. It was also found by Slatineanu and Danielopolu<sup>13</sup> that complement could be fixed by leprosy serum, employing tuberculin as antigen. Complement-fixation in leprosy was also obtained by Frugoni and Pisani by using tuberculine, tubercle bacilli, and extracts of sarcoma and carcinoma as antigen.

It has been my privilege during the past six months to have employed the Wassermann reaction in sixty cases of leprosy. Fifteen of these cases were seen in various clinics and hospitals of New York City. The remaining forty-five cases were seen during a recent visit to the

Leper Home in Louisiana, an institution under the direction of Dr. Isadore Dyer, of New Orleans. All of these fifteen cases with one exception were tested by both the regular Wassermann and the Noguchi method, the results in all cases being identical. The cases in Louisiana were tested alone by the more convenient method of Noguchi owing to lack of time at my disposal. The technique used was the same as that described in some of my previous communications<sup>14-16</sup> and will be here omitted for the sake of brevity. It may, however, be remarked that the antigen used in the regular Wassermann test was an alcoholic extract of syphilitic liver. The antigen used in the Noguchi<sup>17</sup> test consisted of acetone insoluble lipoids. The patient's serum in the Noguchi method was used in active condition.

All of the cases examined were undoubted lepers, many of them having been under observation for years. No history of syphilis was obtainable in any case. Certainly no lesions were seen in any patient that could have been regarded as syphilitic.

To summarize the results, of the thirty-eight cases of tubercular and mixed type the reaction was negative in seven, weakly positive in three, positive in twenty-one, and strongly positive in seven cases. Of the twenty-two maculo-anæsthetic and purely anæsthetic cases the reaction was negative in nineteen, strongly positive in one and positive in two cases.

It may be of interest to add that beside the fifteen cases of leprosy examined in New York, I have also seen or personally known during the past six months, of seven other cases (three of Dr. J. McF. Winfield, and one each of Drs. William B. Trimble, M. B. Parounagian, F. M. Dearborn, and G. H. Fox). It will doubtless seem surprising to some that there should have been so many cases of leprosy in New York City during such a short space of time.

In closing I desire to express my indebtedness to Dr. Isadore Dyer for so kindly putting at my disposal the splendid material of the Louisiana Leper Home. I also wish to thank Dr. Ralph Hopkins, the attending physician to the Leper Home for aid in obtaining the case histories. For the material in New York I am indebted to the physicians whose names have already been mentioned in the text.

CASES.\*

CASE No. 1.—(Patient of Dr. G. H. Fox, New York Skin and Cancer Hospital.) T. D., girl, born in Key West, Florida. Maculo-anæsthetic case of one year's duration. Reaction: Positive.

CASE No. 2.—(Patient of Dr. S. Dana Hubbard, service of Dr. Jackson, Vanderbilt Clinic.) I. W., West Indian negro, 33 years old. Advanced case of tubercular type. Duration of disease, two years. Reaction: Strongly positive.

CASE No. 3.—(Patient of Dr. L. Duncan Bulkley,

\* Read at the annual meeting of the Medical Society of the State of New York, at Albany, N. Y., January 25, 1910.

\* Cases one to fifteen, inclusive, seen in New York; cases sixteen to sixty, inclusive, seen at the Louisiana Leper Home.

New York Skin and Cancer Hospital.) R. R., Russian woman, 60 years old. Advanced case of mixed type. Duration, ten years. Reaction: Positive.

CASE No. 4.—(Patient of Dr. Wm. S. Gottheil, City Hospital.) Chinaman, 29 years old. Moderate case of tubercular type, of four years' duration. Reaction: Weakly positive.

CASE No. 5.—(Patient of Dr. Wm. S. Gottheil, City Hospital.) E. G., man, 27 years old, born in Russia. Mild case of tubercular type. Duration, three and a half years. Reaction: Positive.

CASE No. 6.—(Patient of Dr. Wm. S. Gottheil, City Hospital.) H. S., man, 33 years old, born in United States. Case of mixed type, of moderate severity. Duration, ten years. Reaction: Negative.

CASE No. 7.—(Patient of Dr. F. M. Dearborn, Metropolitan Hospital.) P. L., Chinaman, 39 years old. Advanced active case of mixed type. Duration, six years. Reaction: Positive.

CASE No. 8.—(Patient of Dr. F. M. Dearborn, Metropolitan Hospital.) J. M., man, 50 years old, born in Russian Poland. Mixed case of tubercular type. Very few lesions at present, though formerly well marked. Duration of disease not known. Has been in leper ward past six years. Reaction: Negative.

CASE No. 9.—(Patient of Dr. G. H. Fox, New York Skin and Cancer Hospital.) S. Vernick, man, 40 years old, born in Russia. Active fairly advanced case of mixed type. Duration, two years. Reaction: Strongly positive.

CASE No. 10.—(Patient of Dr. G. H. Fox, New York Skin and Cancer Hospital.) P. N., man, 42 years old, Armenian. Advanced case of mixed type. Duration said to be two years. Reaction: Strongly positive.

CASE No. 11.—(Patient of Dr. G. H. Fox, New York Skin and Cancer Hospital.) S. Vite, man, 27 years old, Italian. Very marked active case of tubercular type. Duration, three years. Reaction: Positive.

CASE No. 12.—(Patient of Dr. L. Oulmann, German Hospital.) L. T., woman, 24 years old, born in Russia. Case of mixed type of moderate severity. Duration, nine years. Reaction: strongly positive.

CASE No. 13.—(Patient of Dr. J. McF. Winfield, Kings County Hospital.) J. D., West Indian negro, 29 years old. Maculo-anæsthetic type. Duration, about twenty-three years. Reaction: Negative.

CASE No. 14.—(Patient of Dr. J. McF. Winfield, Kings County Hospital.) C. W., negro, 26 years old, born in United States. Mixed type of moderate severity, of eight years' duration. Reaction: Positive.

CASE No. 15.—(Patient of Dr. J. McF. Winfield, Kings County Hospital.) L. M., man, about 55 years old, Russian. Advanced case of mixed type. Duration, about twenty years. Reaction: Positive.

CASE No. 16.—Colored woman, 57 years old. Active tubercular case. Duration of disease, four years. Reaction: Positive.

CASE No. 17.—White girl, 17 years old. Incipient case of maculo-anæsthetic type. Duration, fourteen years. Reaction: Negative.

CASE No. 18.—White woman, 48 years old. Advanced case of mixed type. Duration, fourteen years. Reaction: Positive.

CASE No. 19.—White woman, 27 years old. Case of mixed type. Duration, seven years. Patient improving. Reaction: Weakly positive.

CASE No. 20.—White woman, 50 years old. Mixed type of disease in an advanced stage. Reaction: Positive.

CASE No. 21.—White woman, about 60 years old. Anæsthetic type in advanced stage. Duration of disease unknown. Reaction: Negative.

CASE No. 22.—White woman, about 50 years old. Advanced case of anæsthetic type. Duration of disease unknown. Reaction: Negative.

CASE No. 23.—White woman, 40 years old. Advanced and active case of mixed type. Reaction: Positive.

CASE No. 24.—White woman, about 50 years old. Incipient maculo-anæsthetic case. Duration unknown. Reaction: Negative.

CASE No. 25.—White woman, 87 years old. Incipient case of maculo-anæsthetic type. Duration, five years. Reaction: Negative.

CASE No. 26.—Colored woman, 50 years old. Advanced case of tubercular type. Duration of disease, three years. Reaction: Positive.

CASE No. 27.—Colored woman, 53 years old. Advanced anæsthetic case. Disease checked. Duration, twenty-seven years. Reaction: Negative.

CASE No. 28.—Colored woman, about 60 years old. Advanced anæsthetic case, the disease being stationary. Duration, fifteen years. Reaction: Negative.

CASE No. 29.—Colored woman, 64 years old. Incipient anæsthetic case. Duration, three years. Reaction: Strongly positive.

CASE No. 30.—White woman, 34 years old. Maculo-anæsthetic case. Former tubercles have disappeared. Duration, eight years. Reaction: Negative.

CASE No. 31.—White man, 28 years old. Mixed type. Patient improving. Duration of disease, eighteen years. Reaction: Negative.

CASE No. 32.—White boy, 16 years old. Case of tubercular type. Duration, nine years. Reaction: Positive.

CASE No. 33.—White man, 48 years old. Incipient tubercular type, in which disease is active. Duration, five years. Reaction: Strongly positive.

CASE No. 34.—White man, 45 years old. Advanced case of mixed type. Duration, seventeen years. Reaction: Positive.

CASE No. 35.—White boy, 19 years old. Advanced case of anæsthetic type. Duration, nine years. Reaction: Negative.

CASE No. 36.—Colored man, 48 years old. Advanced case of mixed type, in which progress is stationary. Duration, four years. Reaction: Positive.

CASE No. 37.—Colored man, 37 years old. Active case of tubercular type. Duration, five years. Reaction: Weakly positive.

CASE No. 38.—White man, 21 years old. Incipient case of mixed type, which is improving. Duration, six years. Reaction: Negative.

CASE No. 39.—White man, 40 years old. Maculo-anæsthetic type; improving. Duration, fourteen years. Reaction: Negative.

CASE No. 40.—Colored man, 50 years old. Advanced case of mixed type. Disease active. Duration, five years. Reaction: Strongly positive.

CASE No. 41.—White man, 24 years old. Advanced case of mixed type. Disease active. Duration, eighteen years. Reaction: Negative.

CASE No. 42.—White boy, 18 years old. Terminal case of tubercular type with active lesions. Duration, twelve years. Reaction: Positive.

CASE No. 43.—White boy, 19 years old. Advanced case of mixed type. Duration, five years. Reaction: Positive.

CASE No. 44.—White man, 40 years old. Terminal stage of mixed type. Duration, eight years. Reaction: Negative.

CASE No. 45.—White girl, 12 years old. Incipient case of maculo-anæsthetic type. Duration, four years. Reaction: Negative.

CASE No. 46.—Colored boy, 9 years old. Incipient case of maculo-anæsthetic type. Duration, four years. Reaction: Negative.

CASE No. 47.—White boy, 16 years old. Advanced case of mixed type. Duration, four years. Reaction: Positive.

CASE No. 48.—Colored man, 59 years old. Maculo-anæsthetic case; improving. Duration, two years. Reaction: Positive.

CASE No. 49.—White man, 43 years old. Advanced case of anæsthetic type. Reaction, thirty years. Disease arrested. Reaction: Negative.

CASE No. 50.—White man, 20 years old. Incipient

case of mixed type, relapsing after apparent cure. Duration, nine years. Reaction: Strongly positive.

CASE No. 51.—Colored man, 42 years old. Terminal stage of mixed type. Duration, three years. Reaction: Positive.

CASE No. 52.—White man, 54 years old. Incipient case of anæsthetic type. Duration, ten years. Reaction: Negative.

CASE No. 53.—White man, 58 years old. Terminal case of anæsthetic type. Duration, thirty years. Reaction: Negative.

CASE No. 54.—Colored man, 26 years old. Terminal case of mixed type. Duration, probably five years. Reaction: Negative.

CASE No. 55.—White man, 56 years old. Terminal stage of anæsthetic type. Duration, thirty years. Reaction: Negative.

CASE No. 56.—Chinaman, 75 years old. Anæsthetic case of thirteen years' duration. Reaction: Negative.

CASE No. 57.—White woman, 43 years old. Case of mixed type; improving, tubercles having disappeared. Duration, twenty years. Reaction: Negative.

CASE No. 58.—White man, 46 years old. Advanced anæsthetic case. Patient claims to have been discharged cured from a Norwegian hospital twenty years ago. Duration, twenty-five years. Reaction: Negative.

CASE No. 59.—White woman, 35 years old. Advanced, active case of mixed type. Duration, fourteen years. Reaction: Strongly positive.

CASE No. 60.—White woman, 57 years old. Advanced case of mixed type, tubercles having disappeared. Duration, twenty years. Reaction: Positive.

#### Conclusions.

1. A positive Wassermann reaction is frequently obtained in cases of leprosy giving no history or symptoms whatever of syphilis.

2. The reaction is at times very strong, inhibition of hæmolysis being complete.

3. The reaction occurs chiefly in tubercular and mixed forms of the disease, especially in the advanced and active cases.

4. In cases of the maculo-anæsthetic and purely trophic type the reaction is generally negative.

5. The value of the test is not affected in the slightest by the results found in leprosy.

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#### CASES REPORTED.\*

By GEO. A. LEITNER, M.D.,  
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Mr. Chairman and Gentlemen:

THE object of this paper will be rather a short history of several, to me decidedly interesting and grave cases, which have come under my surgical care during the past year or two in my service at the Nyack Hospital. The idea will be to give a short description of the injuries and a report of some unusual phenomena following operation upon these cases.

CASE I. *Rupture of the spleen.*—August 19, 1908, about 8.30 P. M., I was called to attend Anthony C., age 20, at his home in Piermont, and found on my arrival the young man suffering intense abdominal pain. He was in severe shock, as indicated by weak, rapid pulse, anxious facial expression and moist, cold, clammy condition of the skin. I received the following history from his family: At about 4 P. M., four hours previous to my seeing him, he fell from a wagon weighing about 700 pounds, on which he and several others were riding, one hind wheel passed over his abdomen, he quickly recovered and jumping on the wagon continued to ride for about one-half hour, when he suddenly was attacked with severe spasmodic pain in the abdomen. He was taken to his home where several hours later I found him. On examination there were no signs or evidence of trauma apparent. Over the abdomen there was marked rigidity of both recti muscles and general resistance over

\* Read at the annual meeting of the County of Rockland Medical Society, at New York City, N. Y., December 1, 1909.



the entire abdominal wall. My diagnosis was a serious internal lesion of some viscus or viscera and recommended, after administering morphia subcutaneously, an immediate exploratory abdominal operation. Consent was readily given and I hastened his removal to the hospital, where at 9.30 P. M., assisted by Drs. Blauvelt and Kline, Dr. Maynard administering the anæsthetic, I performed laparotomy, owing to the location of the pain in the epigastric region. I decided on an incision from the ensiform cartilage to the umbilicus. When the peritoneum was opened a large quantity of clots and blood escaped through the incision. A rapid examination of the stomach proper and the intestines was made and no evidences of rupture, perforation or hæmorrhage were found. Next the liver was investigated for injury, with a negative result, then the right kidney was examined and found normal, then in searching for the left kidney, which I located and also found normal, I withdrew my hand from the abdominal cavity and adhering to the back of my glove was a tongue shaped piece of the spleen. I enlarged the abdominal opening at right angles dividing the left rectus muscle, and with the aid of hot sterile towels walled off the surrounding viscera and exposed the raw surface of the main body of the spleen still attached to a very short mesentery, which prohibited my dislodging or withdrawing the organ into the edges of the abdominal wound. The hæmorrhage was very profuse for a short period and on the suggestion of Drs. Blauvelt and Kline I packed towels, rung out in boiling salt solution, against the raw surface until all hæmorrhage was controlled, the towels were then removed and then I packed one hot, wet towel against the spleen and with the end of the towel protruding through the angle of the wound I sutured the peritoneum separately and the rest of the abdominal wall with through and through silk-worm sutures. The patient was returned to his bed and during the first twenty-four hours he received five  $\frac{1}{8}$  grains of morphia subcutaneously and four coffee-saline enemata, were retained. His temperature at the end of twenty-four hours was 104.2, pulse, 134; respiration, 26. Thirty ounces of urine was removed per catheter. The same treatment was continued during the second twenty-four hours, at the end of which time his temperature was 103, pulse, 110; respiration, 30. Urine, twenty-four ounces with specific gravity of 1026, negative as to albumen or sugar. Third day, temperature, 102.6; pulse, 88; respiration, 20; urine thirty-four ounces, with a high s. g., patient was very comfortable and did not complain of any pain. Fourth day, pulse, 88; temperature, 103.8; respiration, 30; patient was given an ox-gall enema, followed by a good result, patient for the first time voiding urine. The nights of the fifth and sixth days the patient, perfectly normal during these days, became

violently delirious, the character of the delirium was extremely peculiar, inasmuch as the patient the following mornings could describe minutely everything that he said or did, yet stated that he was unable at the time to control his actions. On Monday, the sixth day, the patient's temperature was 102, pulse, 78; respiration, 24. I decided to remove the towel which had been used as a tampon against the spleen. The patient was taken to the operating-room and under anæsthol as an anæsthetic I removed the towel, introduced a rubber drainage tube into the cavity after a thorough washing out and redressed the wound, sending the patient back to his bed. From this time on the patient made an uneventful recovery, and to-day he has no ventral hernia, is well and hearty, weighing about twenty pounds more than at the time of his discharge from the hospital. There were no laboratory tests or laboratory examinations made of the blood during his convalescence so that I am unable to go into any scientific explanation of the blood changes that are known to occur in trauma of this organ, but on the other hand several interesting phenomena occurred. First of all after the second day when his pulse reached 132, even with a temperature of 104+ his pulse varied from 78 to 98; the peculiar form of night delirium; the absence of pain, and the general comfortable condition of the patient and his complete recovery after one and a half years he still enjoys perfect health.

CASE II. *A case of gall-stones.*—I exhibit to you specimens of gall-stones.

This operation was performed last year on a woman patient who for over twenty years had given a history of biliary colic. Nothing unusual about the condition except the large number of gall-stones which vary from the size of a mustard seed to that of a grain of corn, the total number by actual count, 2,523.

CASE III. *Fracture of the pelvis, rupture of the urethra, retention of urine, severe hemorrhage.*—Operation with perfect recovery.

Michael F., patient of Dr. Maynard, was received into the hospital on August 5th, 5 P. M., with the above injury. Attempts with catheter failed to relieve patient. The following day, assisted by Dr. Kline, an external urethrotomy showed marked laceration of the urethra with fracture of the pelvis. No trace of urethra could be located owing to the severe trauma and the hemorrhage from the surrounding tissue. I performed a supra pubic cystotomy, keeping outside of the peritoneum. The bladder was evacuated and silver curved sound was passed into the perineum through the bladder, a rubber tube was then attached to the sound and withdrawn into the bladder. The bladder wound closed, the rubber catheter was then fixed by sutures in the perineum, the pelvic wound packed and patient put to bed. The orifice of the rubber catheter was controlled by

an artery clamp, and every two hours the clamp was removed to allow escape of urine. Patient was given the first few days some morphia. Urotropin was freely administered, and on the fourth day the deep wound was dressed under anæsthesia, the wound repacked and on several subsequent dates the wound was dressed under anæsthesia. The catheter remained in the bladder until healing had well advanced when it was removed and the patient was encouraged to void per viam naturalem, which he succeeded in doing from the beginning, and to-day he is perfectly recovered with a urethra through which once weekly a thirty French sound is passed.

### HAS THERAPEUTICS KEPT PACE WITH THE ADVANCE OF OTHER BRANCHES OF MEDICAL SCIENCE?\*

By C. W. DENNIS, M.D.

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**O**F all the branches of medical science there is none having a more uncertain foundation than therapeutics. There are so many elements entering into the treatment of a case, that it is most difficult to give to each its relative position of importance.

Assuming a correct diagnosis (the difficulty of which adds still more uncertainty) there enters the factors of sanitation, bathing, feeding, nursing, the mental attitude of the patient, his surroundings, peculiarities, idiosyncrasies, opsonic power, phagocytic power, the degree and virulence of the infection, his susceptibility to medicinal influence, and finally the medicines administered. Then comes the question of quality, strength and purity of the medicinal agents selected. If the patient recovers what means have we of determining what most favorably acted to bring it about? What intelligent physician would pretend to say that the relative value of each of the factors were determinable by any process of reasoning which could be applied.

So it becomes at once apparent that if we can not determine the part which therapeutics performs in the treatment of disease, and since the progress of this branch of medicine must be based on its usefulness to-day compared with its usefulness yesterday, the conclusion is forced upon us that the discussion of the question whether therapeutics has progressed equally with other branches of medical science becomes purely a matter of speculation and a decision an impossibility.

Indeterminate conclusions of this kind, however, are not new to the student of medicine; they meet him at every turn of his professional life in

the realm of therapeutics. He has sought in vain for facts, some firm foundation on which to rear a structure which would stand the test of criticism.

The elder Wood, in the preface to the First Edition of his *Therapeutice*, published in 1875, says: "To establish therapeutic facts the profession clings with a desperation and unanimity whose intensity is the measure of unsatisfied desire, for something fixed, yet with what a babel of discordant voices does it celebrate its two thousand years of experience. The history of medical progress is the history of men groping in the darkness, finding seeming gems of truth which were soon cast back into the vast heap of forgotten baubles, which in their day had been mistaken for verities."

Modern therapeutics, unlike the therapeutics of the ancients, is divided into many branches or subdivisions, the principal ones being serum-therapy, electro-therapy, radiotherapy, mechanotherapy, hydrotherapy, psychotherapy, and last, and most important, what may properly be called drug-therapy. It is the last to which I desire to direct my efforts at this time, as I believe it is today the most discredited of all the branches of medicine.

There probably never was a time when medical men had so little faith in the positive effects of drugs when applied to the cure of disease, and this pessimism seems to increase with time.

We do not know when therapeutics began to be practiced as an art, but certainly fifty centuries have passed since its infancy and during this time some of the greatest minds nature ever brought into being have grappled with its gigantic problems.

Human intellect has in these years made giant strides. The forces of nature have bended to the will of man, sea, earth and sky have yielded to his dominion, but for those who have labored to find in drugs the cure for disease, only disappointment has rewarded their efforts. Approximately there are two hundred separate diseases recognized and described in our literature, and out of all these perhaps but one has positively and incontestably yielded to medicine as a sole curative force. I refer to quinine and malaria. Exception may be taken to this statement by these who claim that mercury cures syphilis, and there are, besides, some superficial infections and parasitic diseases which are cured by the application of antiseptics.

Is drug therapy then a failure? Must we seek other methods, other agents of a different character, must we appeal to the microscope and culture tube instead of the products of the fields and woods and earth and water? Is the bacteriologist to become the healer of the world's diseases? Is serum-therapy, the youngest branch of medicine, to become the agent which is to fulfill the hopes of the past ages and lift the whole art of thera-

\* Read before the First District Branch of the Medical Society of the State of New York at Middletown, N. Y., October 28, 1909.

peutics up to an equal plane with surgery, sanitary science and preventive medicine?

If it is to be so, if the labor of Jenner, Koch, Pasteur, Klebs, Von Behring and Flexner and many others, are to mark a new era in medicine, the world can only regret they had not lived before. If drugs, as curative agents, are to take a secondary place permanently as they have temporarily, it must be accepted as the design of nature and in accordance with her undeviating law.

There is, however, another picture affording a marked contrast to this. There is another office which drugs perform and which justifies and fulfills all the hopes of the past and present. While they may not cure directly, as the fathers believed and as they were determined to demonstrate, they do relieve, sustain and soothe as no other agents can.

I can name five drugs whose influence is so potent for good, so powerful in the relief of pain, so sustaining and strengthening, that their discovery would justify the efforts which have been put forth by all the generations of physicians who have lived and wrought and died.

Here, then, I believe is to be the future field for drug therapy. It is a field our predecessors cultivated most imperfectly if we consider their methods of treatment, as apparently the comfort of their patients were ignored absolutely. We need not go back in the history of medicine but one short century to find a demonstration of their failure to grasp what seems now to be so apparent.

In 1823 there was published in London "The Cyclopedia of Practical Medicine." It consisted of four volumes on the same plan as our present day "Systems of Medicine." Evidently it was standard, as an American edition was published in 1849 by Lee & Blanchard, of Philadelphia.

In the article Pneumonia the following is an abbreviated statement of the treatment laid down and which Dunglison, the American editor, must have accepted just about 60 years ago, as he allowed it to stand practically unmodified. See page 626, Vol. III.

I cannot quote *verbatim* on account of space. The gist is as follows: As soon as seen or diagnosis made the patient is at once bled to the extent of from 20 to 40 oz., preferably from both arms at once, till syncope ensues, this to be repeated each day for from 3 to 5 days; after this tartar emetic is to be administered to a state of emesis, which is to be maintained for the balance of the course of the fever. Mercury is to be given to salivation and the chest to be freely blistered. No water was to be given, according to the celebrated Hamilton, of Edinboro, not even pediluvia.

It is inconceivable that medical men of the middle of the nineteenth century, who laid the foundation of their temples of knowledge on the combined wisdom of tens of centuries could have

held such opinions. It may be that the present state of this art is the reaction from the severity of the past, but in this reaction we have developed a new conception of the use of drugs which has all the appearance of permanency. Abandoning the old idea that the prime object of medicine was to cure, we simplify the proposition immeasurably. We may now direct our attention to making patients comfortable, the watchword now is not cure, but rest, freedom from pain, all possible absence from discomfort, and in this role drug therapy finds its logical employment, and in this role, if we could measure its advance, it would move forward equally with any of its sister sciences.

The fathers, in their determination to find cures, searched the world for drugs; they gathered together an enormous mass of agents claimed to be medicinal, they have been bequeathed to us and we have not yet been able to divest ourselves of the idea that we should use them all; but I believe that medical men are beginning to conclude that we have inherited a lot of junk and some day there will be a housecleaning of our pharmacopia, to its great advantage and improvement.

The whole effort of the mechanical world is directed toward simplicity, commerce and government are being reduced to basic principles, and so should we reduce our drug armamentaria. The eighth decennial revision of the pharmacopia of the United States contains 958 articles. The United States Dispensatory of Wood & Bache, edition of 1875, indexed nearly 15,000 articles, chiefly medicines and medical compounds. While the last edition contains nearly 20,000,—in Wood's *Materia Medica* of 1900—2,760 articles are indexed, in Ellingwood's *Materia Medica and Therapeutics*, the standard of the eclectic school, there are 1,400 indexed, many of them not in the U. S. P. The standard theapeutics of the homeopathic school contains still more.

Besides all these the commercialists have placed before us thousands of medicines and compounds for our consideration, until our *materia medica* is so chaotic that the student is appalled and the practitioner bewildered. There is no man of experience but knows that he could select one hundred remedies from this mass and then cast the balance to the four winds of heaven, and his results would not be impaired; he also knows that he could select five remedies out of the hundred and with these accomplish more good than could the man who selected the other ninety-five. It is the spirit, the genius of the age—simplicity. I make the assertion without fear of successful contradiction that if all the drugs outside of these hundred were destroyed that we would accomplish *more* good than we do now for the simple reason that we would know them better, we would become more familiar with their qualities and powers. Fewer drugs and single remedies

rather than combinations, with a distinct knowledge of dose and effect, is the only scientific method of prescribing.

Polypharmacy is the evidence of ignorance. If one don't hit another may is the supposition, and if by any chance a hit is made it is impossible to tell which was the lucky ingredient. The skilled marksman shoots with a single bullet, driving it straight as a ray of sunlight to its mark, a thousands yards away, the unskilled shoots with many bullets trusting to luck to hit something if it is close enough and large enough. More than a hundred years ago Hahnemann, representing the spirit of revolt against the medical practice of the day, established the homeopathic school, based on single remedies for single symptoms and small and oft-repeated doses. He promulgated also other theories, whether he believed them or not I do not know, but it served a great purpose, for it led gradually to the abandonment of heroic doses and to the gospel of comfort. Fifty years later Scudder, a most original thinker, followed Hahnemann in his theory of single remedies and developed the eclectic school upon the theory of single specific remedies for single specific diseases.

"There is no form of error but contains a grain of truth." Hahnemann and Scudder promulgated great errors which became forces carrying along this grain of truth to a good end. As the years go by the line of demarcation between the schools grows dimmer, the best of all are being gathered together and built up into a new structure. We may not, in future, find a panacea in drugs for all diseases or indeed any other diseases that we now have. We may not discover any drugs of any more potency than those now in our hands, but we will learn so well their power, become so familiar with their quality and pharmacology, that we can aim at direct results with reasonable certainty of attaining them.

How this desirable end is to be accomplished should engage the deepest thought of the profession. The time is ripe for a therapeutic renaissance. Diagnosis is becoming more and more a certainty, physiology and pathology are uncovering nature's secrets to the workers in the laboratories of the world. The pharmacologist stands ready to prepare with elegance and accuracy the medicines we require, and it is time we as drug therapists should abandon the slipshod methods of the past of accepting and using medicine from any and every source simply because it has a label on it and because some one wants to sell it to us.

Our *Materia Medica* contains such an immeasurable number of agents that no man can become familiar with any of them if he considers them all. As a result many take refuge in nihilism or become victims of despair. As an example of the inaccuracy of medicine I cite an experiment made by Dr. Edmunds, of the pharmacological labora-

tory of the University of Michigan. He purchased in the open market and from most reliable firms widely scattered, twenty-six samples of *Tr. Digitalis*. He tested them physiologically on frogs weighing twenty grams each and found that the amount required to stop the heart in diastole in one hour varied in the proportion of one to four. The variation for *strophanthus* was the same. I refer to this as an example, and it might be repeated with many of our most potent remedies. If we must make our physiological essays by the bedside we need not expect enthusiasm at results.

#### CONCLUSION.

The future hope of the therapeutic art as applying to drugs certainly lies along the following lines:

1st. Dropping out of the pharmacopia hundreds of medicines which are of doubtful utility or which are with difficulty prepared with accuracy or which duplicate each other in their range of action.

2d. The State should provide a laboratory in which would be made examination and tests of medicines to determine their strength and purity, and a law should be made prescribing a fine and punishment for offering for sale medicinal substances varying materially from a standard as defined in the U. S. P. This, as I understand, is not covered by the "pure food and drugs act." In addition, skilled men should be employed to determine physiologically, when possible, the positive effects of drugs most commonly used. As it is to-day such assays are mostly made by drug houses, or by scientists who do the work for scientific ends.

3d. More careful observation should be made and recorded by medical men of the effects of medicines clinically; single remedies should be used more frequently; the ready-made prescription should be largely, if not entirely, dispensed with, as it cultivates habits of carelessness and indolence.

4th. Proprietary remedies should be entirely refused which do not contain the exact formula, and it would be better if they were never prescribed, as in doing so we simply use our prestige to advertise another man's business; we acquaint the public with remedies which they finally become so familiar with, that they purchase them in open market and use them indiscriminately, to the injury of our own business and many times to their detriment, and benefit only the manufacturers, who grow rich from our lack of business sense.

5th. Every doctor should familiarize himself, in a measure at least, with the drugs used by other schools of medicine. No one school possesses all the knowledge of the world.

6th. Careful study of each case, recognizing that Nature is always making an effort to cure

and not to kill, which is the direct opposite of the view it seems the fathers held, judging by their therapy, will lead to the adoption of those measures which removes obstacles from her pathway and strengthens her power. If drugs cannot cure they can aid nature to cure; if they cannot cure or aid in a cure they can relieve, and thus accomplish all the prime objects of drug therapy.

## ANESTHETICS AND ANESTHESIA.\*

By ROBERT CORDNER, Ph.G., M.D.  
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APPRECIATING the fact that much might be said on the subject of anesthesia and anesthetics, and their great importance to us as co-laborers in the field of practical medicine, I shall not inflict upon you in the brief time allotted to me a recitation of the chemical and historical facts concerning them, or refer to the great masters of the past who have handed down to us the methods whereby pain and suffering have been largely alleviated, and have made possible the performance of operations such as are practiced all over the civilized world to-day.

It remains for us as busy practitioners of medicine to employ these agents with intelligence and care and to improve upon our methods of administration in the future if possible.

The practical use of anesthetics to-day in the various branches of medicine is such a common proceeding that every physician is more or less skilled in their administration.

Although anesthesia with the usual precautions is a comparatively safe practice, and statistics show the mortality to be very low, yet we must not forget the fact that we are dealing with the unconscious state and that the patient deserves the most careful protection at our hands.

I desire to offer a protest against the indiscriminate habit of touching the eyeball with the finger which is practiced by some physicians and dentists while the patient is under the influence of an anesthetic. I will remind you that there is a real serious condition of the eye known as a contusion of the cornea with its resulting complications. There is no real good to be derived from such a practice, while to the contrary more valuable information may be derived by observing the motility of the eyeball and the action of the pupil by the light reflex.

There have been various anesthetics and mixtures offered the profession from time to time in the past, and like some of the so-called new drugs they come and go, yet the fact remains that the old standards have not been displaced. I refer to ether, chloroform, nitrous oxide gas, ethyl chloride and cocaine hydrochlorate. With these valuable agents we can practice medicine and sur-

gery very well, as they embody all practical requirements.

In regard to ether and chloroform much has been written as to which is the safer anesthetic and various commissions have investigated and published statistics on this subject. It is therefore perhaps a safe statement to make that the majority of surgeons in this country to-day favor ether as the safest general anesthetic. We all know that chloroform is a powerful drug; that its action is more prompt than ether; that a smaller dose is required to produce anesthesia and that greater care is therefore necessary in its administration. Chloroform cannot be used so carelessly as ether.

Undoubtedly chloroform or ether, when administered in excessive quantities, are capable of producing a fatal collapse or poisoning. In the administration of either of these drugs it is a good rule to allow the patient plenty of air and to use as little of the anesthetic as is actually necessary to accomplish the object of the operation.

The ideal anesthesia is one in which consciousness is regained within a few minutes after the completion of the operation. In my opinion there have been cases where too much of the anesthetic has been used with fatal results—the result being ascribed to shock from the operation whereas in reality it was a case of poisoning by the anesthetic.

The special methods of anesthesia for operations about the head, face and throat deserve more attention. Rectal anesthesia, first suggested by Roux in 1847 and later improved upon by Dr. Brewer, of New York, and Dr. Cunningham, of Boston, and others, will probably receive more attention in the future. The apparatus doing away with the ether cone, recently devised by Dr. Albert H. Miller, of Providence, R. I., consisting of an ether vaporizer operated by a foot pump and so conducting the ether vapor by means of a few feet of rubber tubing to an ether tube located in one of the jaws of the specially constructed mouth gag, is also worthy of consideration.

It sometimes happens that the operator is so seriously engaged in an operation that he has no time to offer suggestions to the anesthetist in the interest of the patient. The anesthetist, in such a case, may render good assistance by directing such treatment.

Paralysis or a neuritis, especially of the upper extremity, results occasionally while a patient is on the operating table from insufficient protection against the sharp edge of the table coming in contact with and causing pressure on the nerve structures of the arm. I think you will all agree that it is easier to prevent than to cure such a condition. In my opinion it is also easier to prevent collapse of the patient while on the table than it is to treat such a condition, and I am therefore an advocate of supportive measures during cer-

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tain operations and firmly believe in the value of external heat about the cardiac region and extremities, hot saline with whiskey as rectal enemata, and hypodermics. Perhaps if these measures were practiced more generally, there would be less use for resorting to the injection of salt solution by means of the canula into the breast.

The enthusiasm of the majority of operators for ether as the favorite anesthetic at the present day is so great that little attention is given the merits of any other agent. Indeed, some are so skeptical that objection is offered to the careful use of the safest of known anesthetics, namely, nitrous oxide gas, preceding an ether anesthesia, believing that in some mysterious way it might produce shock. In the gas-ether apparatus we have a method of obviating to a large extent the disagreeable features of irritation to the respiratory air passages as manifested by coughing and choking sensation, and in consideration of the fact that the induction of unconsciousness may be obtained within thirty seconds and complete anesthesia in many cases can be accomplished within 5 minutes, this method should be more generally employed.

There are some observers who are convinced that the administration of ether as an anesthetic to a tubercular inclined person (even in the operation for the removal of tubercular glands) has a tendency to light up a latent tubercular lesion into an active process. It is possible that in the future chloroform will be more generally employed in all tubercular cases.

Whenever possible a patient should be given the benefit of previous preparation for the anesthetic. The stomach should be empty by lavage, or where time permits, no food for 6 or 8 hours previous to operation. Where this latter method is used there is no objection to a little brandy two hours before operation. The rectum and bladder should be empty. It is a common practice to administer a cathartic to be followed with a thorough soapsuds enema before operation. If the patient is able to void the urine, it is not necessary to resort to catheterization. An analysis of the urine should be made. It is well to examine the heart and pulse action before beginning the anesthetic. A plate of false teeth should be removed.

After the patient is well under the influence of the anesthetic, I prefer to switch off from the gas-ether apparatus to the old-fashioned cone made of towel, newspaper and safety pins. In the cone I prefer a piece of gauze rather than a wad of cotton or fibrous sponge. Care should be taken that the cone is sufficiently large to insure a good admixture of air with the ether and that the material in the cone on which the ether is poured is not too near the nose or mouth of the patient. It is well to have at hand a tank of oxygen gas and a good working hypodermic outfit. The anesthetist should be provided with a mouth gag,

tongue forceps, sponge holders and small squares of gauze previously moistened with water, as they may be needed badly. The Mathieu's tongue-holding forceps is preferable to the needle forceps,—owing to the injury of the tongue caused by the latter instrument, which should be condemned.

Authorities seem to disagree as to the advisability of giving the patient a full dose of sodium bromide or morphine before operation. Some surgeons in ether anesthesia give a hypodermic of morphine an hour before operation with the object of improving the heart action; to prevent vomiting during the anesthetization; to shorten the stage of excitement and maintaining the anesthetic state with a smaller amount of the anesthetic.

In regard to chloroform some advise a smaller dose of morphine than in the case with ether—fearing, perhaps, that they are treading on dangerous ground. One authority, in writing on this subject, makes the statement that "the hypodermic injection of one-fourth grain of morphine one hour before the administration of chloroform will reduce to a very considerable extent the amount of chloroform necessary to produce anesthesia."

It is interesting to note, however, that this same authority seems careful not to make any specific claim that the patient has any greater protection or immunity from cardiac or respiratory failure than in the case where the morphine is not thus employed, and we all know that not much chloroform is required normally to produce anesthesia.

Against this proposition it is claimed that morphine administered before anesthesia depresses the respiration, lowers temperature and thus increases operative shock; interferes with the pupillary phenomena of anesthesia; delays awakening from the anesthetic sleep, and favors post-anesthetic vomiting. In analyzing these various claims, it is fair to state that with the modern gas-ether apparatus there is no stage of excitement, and if the stomach is empty we are not troubled very much with vomiting.

In the use of morphine we do know that there is danger of interfering with the pupillary phenomena which to some anesthetists is an important guide in the administration of an anesthetic. There is one point that needs clearing up and that is: does morphine safeguard the respiratory and circulatory systems during anesthesia? At the present time I favor morphine after the patient regains consciousness from the anesthetic.

It seems to me we are dealing with a problem needing a little more research work and one that has not been thoroughly elucidated in our practical therapeutics of to-day. During the administration of an anesthetic the pulse, breathing and color of the face should be carefully watched.

The opinion seems to prevail that chloroform kills by a paralysis of the heart, while in ether

there is a paralysis of respiration—probably in some cases a combination of both.

No doubt we have all seen occasionally, at operation, alarming symptoms develop, for instance, in the case with ether, the respiration temporarily suspended though the pulse will be found to be beating regularly. In treating such an emergency by artificial respiration and stopping the anesthetic, it is well to bear in mind the advisability of tilting the table to lower the head of the patient, thereby allowing the blood to flow toward the brain by gravitation and thus stimulating the respiratory center in the medulla. In these weak cases beside hypodermic and rectal stimulation, it may be valuable to administer a gentle stream of oxygen.

The danger from the use of anesthetics depends largely upon the condition of the patient at the time of operation; the freedom from any serious organic lesion; the selection and care in the administration of the anesthetic.

In certain cases where no haste exists for an operation and the blood examination demonstrates an anemic condition, this should be corrected by a few months of proper treatment with the idea of putting the patient in the best possible condition.

Notwithstanding the fact that the vapor of ether is heavier than air and tends to flow downward, it is strange that owing to its inflammable nature there are so few explosions while working with ether in the presence of gaslight or actual cautery.

In consideration of these facts and owing to the non-inflammability of chloroform, this anesthetic is to be considered in certain cases where daylight or electric illumination is impossible.

In closing I have only a few words in regard to the local anesthetics—ethyl chloride and cocaine hydrochlorate. The practical use of ethyl chloride is very limited. It is valuable in incising a local abscess without pain. The spray should be directed on the part exactly where the incision is to be made. When the part appears frozen the knife should be promptly used.

Cocaine is the king of all the local anesthetics. Its salt, the hydrochlorate, is generally employed in a 2 to 4 per cent, aqueous solution, though in infiltration anesthesia it is used in weaker solution. We all know its great value as a local anesthetic in eye practice and the advantages in minor surgery when combined with adrenalin chloride. It is invaluable in dental practice for the painless extraction of teeth when used even in 2 per cent. solution. The injection should be made with a sterile, strong curved dental needle about the base of the tooth. After waiting five minutes, the offending member may be extracted absolutely without pain—the patient thus passing from a condition of purgatory into that of paradise.

## Medical Society of the State of New York

### OFFICIAL CALL.

*To the Officers and Members of the Constituent Associations of the American Medical Association:*

The sixty-first annual session of the American Medical Association will be held on Tuesday, Wednesday, Thursday and Friday, June 7, 8, 9 and 10, 1910, at St. Louis, Mo.

The House of Delegates will convene at 10 A. M. on Monday, June 6, 1910, at St. Louis, Mo.

WILLIAM C. GORGAS, *President.*

GEORGE H. SIMMONS, *General Secretary.*

Chicago, Ill., April 1, 1910.

### CELEBRATION OF DR. JACOBI'S EIGHTIETH BIRTHDAY.

The Medical Society of the State of New York celebrated the eightieth birthday of Dr. Abraham Jacobi by giving a reception in his honor at the New York Academy of Medicine on the evening of May the sixth. There was a very large attendance of Dr. Jacobi's friends and admirers from all over the country. A bronze portrait relief of Dr. Jacobi was unveiled by his granddaughter, Ruth McAneny. Dr. Joseph D. Bryant, Chairman of the Committee of Ex-Presidents of the Society, presided and spoke as follows:

#### MY FRIENDS:

It is hardly necessary for me to say that we are here to express in the simplest and most democratic manner possible our appreciation and affection for Dr. Abraham Jacobi.

And it is proper that you should understand that this unpretentious plan of greeting is in accordance with the modest notions of Dr. Jacobi himself. In fact, a plan of welcome which Dr. Jacobi had hoped to extend to the members of his profession on his eightieth birthday, had not the opportunity been forestalled by the action of the Medical Society of the State of New York.

However, the important fact should not be overlooked that we are honoring our profession and ourselves in thus honoring one to whom the full measure of honor is due, especially in professional and civic paths of thought and action.

As our friend is older in time than but few of us; younger in activity than most of us; virtuous and civic as the best of us; larger in experience than any of us; how fitting, therefore, it is that we on his eightieth birthday transmit to enduring substance the likeness of Dr. Abraham Jacobi!

In presenting the bronze Dr. Charles Jewett, President of the Medical Society of the State of New York, spoke as follows:

DR. JACOBI,

SIR:

Doctors and all good citizens have united in paying you homage. Well merited are the

wealth of honors you have received and the best we can yet bestow. Most of all at this time are we mindful of your long and distinguished service in the Medical Society of the State, not alone through the unique value of your many contributions to its scientific work but as well by your ever helpful counsels in shaping its policy and in furthering its highest aims, and no less by your lofty example of professional character and good citizenship. We are keenly sensible how much your learning and achievements have contributed to the proud position we hold in American Medicine. We feel sir, that this occasion would not be complete without some lasting testimonial of the respect and affection we bear you. Permit me then in the name of the Medical Society of the State of New York and in token of the universal sentiment to present you with this portrait relief of one of the world's greatest physicians and most eminent citizens, Abraham Jacobi.

#### ADDRESS OF DR. JACOBI.

This conspiracy of friends began with Algeron T. Bristow's open attack in a meeting of the house of delegates of the Medical Society of the State of New York a few months ago. No objection prevailed, and the responsibility is theirs. Here I am, the beneficiary of their good will and old and young friendships, with nothing left to me except an old heart full of gratitude and no words sufficient to express it. It is a source of high gratification, however, to learn that the occasions are becoming more frequent for practitioners and scientists who mostly lead hermit lives, to meet for a handshake and a cordial talk.

I wish I could sign my name to all the eulogies they have pronounced upon me lately. What I am going to do is to collect a number of them so as to learn what I shall have to live up to, in order not to disappoint or disgruntle my friends in coming days, or months, or preferably, years. Preferably years, for I am not anxious this moment to descend from the heights on which you have condescended to place me, or to give up altogether the solution of common problems. Still, what you have praised me for, has from the beginning been your work, you men of the profession dead and alive alike, and that of the opportunities given me by you. Very many have been my leaders or my teachers, all my co-workers. For indeed—

“Die Götter brauchen manchen braven Mann  
In ihrem Dienst auf dieser weiten Erde.”

The poet tells us the gods require many a brave man in their service on this wide globe. My happiness is to have lived long enough for you to say that I was *one* of the brave men wanted for the tasks to be undertaken. To be undertaken, not to be accomplished.

Ancient medicine down to the Homeric age was revered for its service to the individual sufferer. Sacred was the man who relieved a pain and extracted an arrow.

Wise men of antiquity, however, and of the middle ages, claimed for medicine the front seat in the council chambers of justice and of statesmanship and of human affairs generally. That was not appreciated, however, for dozens of centuries. It is but little over a century that John Tate Frank wrote his big and great work on forensic medicine, thus connecting the science and art of healing such as it then was, with the most sacred interests of civilized mankind. The science and art of medicine have since cut loose from philosophical systems; the middle of the past century established sound foundations on biological methods of experimentation and general research; individual disease came to be recognized as a normal process influenced by untoward, mostly preventable, circumstances; epidemics were studied in their connection with microbic germs and rendered amenable to prevention; and the salvation of the individual of the commonwealth pinned its hope more on sanitation than on medication.

With increasing knowledge and philosophical insight, the *morals* of the profession have improved. There was a time when the decent behavior of the doctors towards one another was thought impossible except under police superintendance. Fortunately the intellectual and the moral atmosphere are universal like the physical. Both are contagious. Imponderables have come to their rights like ponderables.

The physician who is in daily contact with suffering which speaks to his heart, and with the cares of worrying and distracted families, and the human problems connected with all ages from school life to senility, with poverty and class prejudices and epidemics and woman and child-labor, cannot help becoming more warmhearted with years, decades, generations. It takes malice or insufficient information to believe they can make the world believe that the unselfish workers at the bedside and in the laboratories, with a financial pittance or none at all as a reward, have become brutal and fiendish, and anxious to cover the trails of criminal cruelties committed against helpless animals. That charge might be dismissed as ludicrous; but being in its results dangerous to the public interest, to the health and life of all that is living, and to the confidence bestowed by the stricken people in their healers, it is high treason.

So it has come to pass that some have tried to heap infamy on the men in the profession, on my friends, who, while making a scanty living out of their daily labor, are indeed undermining their own existence, digging their own graves by altruistically working, privately and collectively, for the extermination of diseases and scourges. Why? They follow the flag. That flag has an inscription: “Ignorance is a crime. The welfare of the poor and the rich is our domain. A nation dying of disease or of starvation is the result of a sin committed by the people of its



government. Under that flag this New York Academy of Medicine and the profession of the County, State and Country have always co-operated. Under it the section of Public Health of this institution has successfully worked up into the first rank. Under it this academy began twenty years ago its agitation for the creation of a central health bureau with a seat in the cabinet of our Presidents. The American Medical Association and lately Senator Owen are active in the same interest which is the cause of eighty millions of people, who should not be born or not immigrate merely to be immolated on the altar of ignorance and neglect. Under it medicine and the doctor will be recognized as the guardian of yourselves, your children and your neighbors, and the protector of social progress. Under it, more than ever before, this and the future generations of doctors will participate in the activities of political and social life, not forgetting their responsibilities to their personal duties and to their profession. We, the doctors, are a sort of state in the state. Our political and social and, to a great extent, our scientific standing has been worked out in our democratic associations extending over a century. Our county and state societies have been the cradle of our existence, as they have fought for our rights and those of the people when jeopardized by ignorance or egotism. Our first allegiance, your first allegiance, belongs to the Medical Societies of the county and state.

I do not believe in the good citizenship of an American physician whose honorable craving is satisfied without membership in his county and state societies. But there are several thousand doctors in Greater New York without that membership. Everybody is convinced, I am sure, that indolence and apathy cannot be the props and staffs of the medical profession. I wish to send out everybody here as an apostle of that conviction. Indeed, the great and touching demonstration of this evening means nothing else, originating as it does in the State Society, but the recognition of my loyalty to the Medical Society of the State of New York.

I wish I might have been able to say something in these few minutes that might find its way to the hearts and minds of the public and my professional friends. On me, occasions like this or similar to it have always made a lasting impression. They have solidified interests, warmed affections, enhanced mutual respect, guaranteed generous support. This very building and the immense library stored in it owe their existence to the co-operation of medical and lay men and women. From this platform, the gift of men and professional aid, representative of many classes in society, who combined to erect this home to the physicians of New York, I once more have the honor to greet you, to thank you for your presence, and Mr. Chairman and Presi-

dent, for your precious gift and the opportunity to see so many friends, I thank you a thousand times.

## COUNTY SOCIETIES.

### MEDICAL SOCIETY OF THE COUNTY OF ERIE.

REGULAR MEETING, APRIL 18, 1910, AT BUFFALO.

Meeting was called to order by President Wende at 8.30 P. M.

On motion, the reading of the minutes of the previous meeting was dispensed with for the reason that they had been printed and published in the *Buffalo Medical Journal*.

Minutes of the Council meetings of March 7th, April 4th and April 16th were read by the Secretary and, on motion of Dr. Lytle, were adopted and the recommendations contained therein approved.

Moved by Dr. Bonnar, seconded by Dr. Grant, that Dr. A. T. Bull be elected an honorary member of the Society. Motion unanimously adopted.

Dr. T. H. McKee, Chairman of the Membership Committee, presented the names of 37 applicants, all of whom were elected.

The report of Dr. John H. Grant, Chairman of the Board of Censors, was read and approved

The report of the Committee on Contagious Disease Hospitals was then read and approved as read, and the following resolutions adopted:

"WHEREAS, The Medical Society of the County of Erie, recognizing the urgent necessity of a Municipal Hospital for Contagious Diseases deploras the unnecessary delay thus far displayed at the cost of the afflicted and the good name of the city by the authorities; and

"WHEREAS, The present temporary hospital for the segregation and treatment of cases of acute communicable disease has been condemned by the Health Commissioner, the present Superintendent in charge, by a joint committee of the Medical Society of the County of Erie and the Buffalo Academy of Medicine, and further, that the site was condemned and abandoned for school purposes because of the noise from an adjoining factory in 1905 by the Board of School Examiners; and

"WHEREAS, Such a hospital, though of a temporary nature, cannot be conducted without danger to the community; be it

"Resolved, That the Medical Society of the County of Erie again respectfully urge an immediate and definite action by the city authorities in the matter of acquiring a site, other than the Ferry Street site, and the erection and maintenance of a modernly equipped hospital for the segregation and treatment of the acute communicable diseases.

"Be it Resolved, That such a hospital properly conducted is sanitary, and by removing foci of infection, a place of safety for the community, we recommend that a joint committee be appointed, consisting of three members each from the Board of Aldermen and the Board of Councilmen, also to be composed of the Board of Health (His Honor the Mayor, the Commissioner of Health and the Commissioner of Public Works), and that the Medical Society of the County of Erie and the Buffalo Academy of Medicine be represented by one member from each society, to be appointed by His Honor the Mayor.

After the business session the following scientific program was carried out:

"The Importance of Urinary Examination in Children," William Irving Thornton, Buffalo.

"Diphtheria Bacilli Carriers," William G. Bissell, Buffalo.

"Inflammation of Veru-montanum, with Exhibition of Instruments and Cases," James A. Gardner, Buffalo.

"Exhibition of Fillaria Sanguinis Hominis," J. H. Potter and L. S. Beals, Buffalo.

"Routine Fecal Examination," A. L. Benedict, Buffalo.

## RICHMOND COUNTY MEDICAL SOCIETY.

APRIL 13, 1910, AT THE STATEN ISLAND ACADEMY.  
"Recent Studies in Acute Anterior Poliomyelitis,"  
Paul A. Lewis, New York City.

MEDICAL SOCIETY OF THE COUNTY OF  
SARATOGA.

TUESDAY, MARCH 29, 1910, AT STILLWATER.

President's Address.  
"Hæmophilia Complicating Surgical Work," G. S. Towne, Saratoga Springs.  
"Report of a Case of Diabetes Insipidus in a Child," J. B. Ledlie, Saratoga Springs.  
"Report of Three Cases of Diphtheria," H. B. Sawyer, Troy.  
"The Problem of the Acute Mental Case," J. Montgomery Mosher, Albany.  
Address by Mr. Philip V. Danahy on the work of the Committee on the Prevention of Tuberculosis of New York State.

MEDICAL SOCIETY OF THE COUNTY OF  
LIVINGSTON.

APRIL 28, 1910, AT CRAIG COLONY FOR EPILEPTICS.

## Program.

"Our Present Day Knowledge of Cancer," Harvey F. Gaylord, Director of Cancer Laboratory, Buffalo.  
"Reports of Surgical Cases," G. Kirby Collier, Sonyea.  
"What Shall We Do for the Old Prostatic?" James A. Gardner, Buffalo.  
"Presentation of Pathologic Specimens," J. F. Munson, Sonyea.

MEDICAL SOCIETY OF THE COUNTY OF  
ULSTER.

REGULAR MEETING, APRIL 5, 1910, AT KINGSTON.

"Some Complications of La Grippe," Aden C. Gates, Kingston.  
"Atypical Pneumonia," Daniel Connelly, Kingston.  
Reports of Cases.

## BROOME COUNTY MEDICAL SOCIETY.

SPECIAL MEETING HELD IN MARCH, 1910.

The following resolutions were adopted:  
"WHEREAS, Through the death of Dr. Frank Myrick the Broome County Medical Society feels keenly the loss of one of its most able, capable and generally beloved members. Be it therefore  
"Resolved, That this sentiment be spread upon the records of the society, that it be given public expression, and that a copy of these resolutions be inscribed and presented to the bereaved family, in evidence of widespread sympathy."

MEDICAL SOCIETY OF THE COUNTY OF  
WYOMING.

QUARTERLY MEETING, APRIL 12, 1910, AT ATTICA.

"Syphilis; Its Diagnosis and Treatment," H. C. Buswell, Buffalo.  
"Migraine," A. G. Bennett, Buffalo.

MEDICAL SOCIETY OF THE COUNTY OF  
DUTCHESS.

APRIL 13, 1910, AT POUGHKEEPSIE.

"Paranoia," A. T. Baker, Fishkill-on-Hudson.  
"Ivy Poisoning," M. M. Lown, Rhinebeck.  
"Blood Examinations and Practical Diagnostic Points

for the General Practitioner," H. P. Carpenter, Poughkeepsie.  
"The Office of Coroner," R. W. Andrews, Poughkeepsie.

MEDICAL SOCIETY OF THE COUNTY OF  
SCHENECTADY.

TUESDAY, APRIL 26, 1910, AT BINGHAMTON.

"Indications for and Technique of Operations for Induction of Labor—Persistent Occipit-Posterior Position, and Craniotomy," George L. Brodhead, New York City.

## LEGISLATIVE NOTES

BILLS INTRODUCED IN THE  
LEGISLATURE.

March 22 to April 22, 1910.

## IN SENATE.

- An Act to amend the Penal Law by adding a new section, 925-a, relative to frauds upon hospitals by patients therein. By Mr. Meade. To Codes Committee. Printed No. 745. Int. 693.
- An Act to amend sections 5, 6 and 7 of the State Boards and Commissions Law, relative to the powers and duties of the State Water Supply Commission. By Mr. Agnew. To Finance Committee. (Same as A. 1211.) Printed No. 755. Int. 701.
- An Act to amend section 22 of the Public Health Law, relative to vital statistics. By Mr. Schulz. To Public Health Committee. (Same as A. 1031.) Printed No. 756. Int. 702.
- An Act authorizing and empowering the city of Mount Vernon to issue bonds for the purpose of constructing a sewage disposal works. By Mr. Wainwright. To Cities Committee. (Same as A. 1160.) Printed No. 761. Int. 707.
- An Act to amend the State Charities Law by adding a new section, 117, relative to the designation of special policemen by the Superintendent of Craig Colony. By Mr. Platt. To Judiciary Committee. (Same as A. 1150.) Printed No. 763. Int. 709.
- An Act authorizing the city of Lockport to raise money for the purpose of improving, operating and maintaining the city hospital in said city, and to issue bonds therefor. By Mr. Mackenzie. To Cities Committee. (Same as A. 1208.) Printed No. 787. Int. 729.
- An Act to amend the charter of the city of Ogdensburg, relative to the powers of the Board of Health, and repealing certain sections thereof relating to the powers of the common council. By Mr. Coats. To Cities Committee. (Same as A. 1171.) Printed No. 804. Int. 740.
- Concurrent Resolution proposing an amendment to section 7 of article 1 of the Constitution, relative to drainage of lands. By Mr. Coats. To Judiciary Committee. (Same as A. 1170.) Printed No. 805. Int. 741.
- An Act to authorize the city of Mount Vernon to make an annual appropriation for the care and maintenance of the Mount Vernon Hospital. By Mr. Wainwright. To Cities Committee. (Same as A. 1202.) Printed No. 822. Int. 757.
- An Act to amend sections 84, 86, 87 and 88 of the Insanity Law, relative to the care and treatment of insane persons and persons under examination as to their sanity, pending such examination and prior to their transfer to institutions for the insane. By Mr. Cobb. To Judiciary Committee. (Same as A. 1287.) Printed No. 831. Int. 766.
- An Act relative to the extension, improvement and development to the water works, water plant and water supply of the city of Ogdensburg, and the issuance of city bonds therefor. By Mr. Coats. To Cities Committee. (Same as A. 1309.) Printed No. 886. Int. 793.

An Act to amend the charter of the city of Oswego, relative to authorizing said city to issue bonds for the construction of certain sewers therein and a sewage disposal plant therefor. By Mr. Cobb. To Cities Committee. (Same as A. 1324.) Printed No. 897. Int. 804.

An Act to amend the charter of the city of Mount Vernon, relative to the board of health, by providing that such board shall consist of the mayor of the city, who shall be its president, and at least six other persons. By Mr. Wainwright. To Cities Committee. Printed No. 905. Int. 812.

An Act to amend sections 170, 171 and 172 of the Insanity Law, relative to the Psychiatric Institute on Ward's Island and the director thereof. By Mr. Brough. To Judiciary Committee. (Same as A. 1357.) Printed No. 911. Int. 818.

An Act to amend section 59 of the Insanity Law and section 1122 of the Penal Law, relative to private institutes for the insane, by providing that no insane patient shall be treated in such institutions unless a license shall have been obtained. By Mr. Brough. To Judiciary Committee. (Same as A. 1356.) Printed No. 912. Int. 819.

An Act to amend section 50 of the Insanity Law, relative to wages of nurses and attendants in State hospitals. By Mr. Brough. To Finance Committee. (Same as A. 1320.) Printed No. 913. Int. 820.

An Act to amend sections 54 and 85 of the Insanity Law, relative to reimbursement of the State for the support of inmates of State hospitals and the enforcement of the State's claim therefor. By Mr. Brough. To Finance Committee. (Same as A. 1326.) Printed No. 914. Int. 821.

An Act to amend the General Municipal Law by adding nine new sections, 126 to 134, inclusive, relative to the establishment of public general hospitals for the care of the sick in any city or village of the State. By Mr. Witter. To Judiciary Committee. (Same as A. 1340.) Printed No. 923. Int. 830.

An Act to amend sections 2, 4, 10, 12, 18 and 19 of the Drainage Law, by providing for the drainage of wet or low lands in the interest of public health or for their improvement for agricultural purposes. By Mr. White. To Judiciary Committee. (Same as A. 1346.) Printed No. 924. Int. 831.

An Act to amend chapter 639, Laws of 1906, extending the term of the commission to investigate and consider means for protecting the waters of New York bay and vicinity against pollution to May 1, 1913. By Mr. Agnew. To Cities Committee. (Same as A. 1375.) Printed No. 954. Int. 845.

An Act providing for the construction of a system of storm sewers for the city of Watervliet. By Mr. Grattan. To Cities Committee. (Same as A. 1376.) Printed No. 957. Int. 848.

An Act to authorize the city of Ogdensburg to borrow money for the improvement and extension of its water works, and to issue bonds therefor. By Mr. Coats. To Cities Committee. Printed No. 964. Int. 855.

An Act to amend the Village Law by adding a new section, 278, relative to the powers of sewer commissioners in regard to sewer connections. By Mr. Witter. To Villages Committee. Printed No. 989. Int. 869.

An Act to amend subdivision 4 of section 239 of the Public Health Law, relative to fines payable to the State Board of Pharmacy. By Mr. Burlingame. To Public Health Committee. (Same as A. 1420.) Printed No. 1031. Int. 902.

An Act to amend section 174 of the Public Health Law, relative to fines payable to medical societies. By Mr. Burlingame. To Public Health Committee. Same as A. 1424.) Printed No. 1032. Int. 903.

An Act to amend section 23 of the Public Health Law, relative to burial and burial permits. By Mr. Witter.

To Public Health Committee. (Same as A. 1449.) Printed No. 1046. Int. 912.

An Act to amend sections 70 and 71 of the Public Health Law, relative to conferring upon the city of New York control over the potable water supply of said city. By Mr. Frawley. To Public Health Committee. (Same as A. 1480.) Printed No. 1066. Int. 927.

An Act to amend article 8 of the Agricultural Law and sections 40, 41, 42, 43, 44, 45 and 50 of the Public Health Law, relative to the adulteration or misbranding of food and food products, and to repeal certain provisions of law relative to the same. By Mr. Platt. To Agriculture Committee. Printed No. 1099. Int. 939.

IN ASSEMBLY.

An Act to amend the State Charities Law by adding a new section, 117, relative to the designation of special policemen by the superintendent of Craig Colony. By Mr. Brainerd. To Judiciary Committee. (Same as S. 709.) Printed Nos. 1433, 1829. Int. 1150.

An Act to amend chapter 343, Laws of 1908, authorizing and empowering the city of Mount Vernon to issue bonds for the purpose of constructing a sewage disposal works. By Mr. Coffey. To Cities Committee. (Same as S. 707.) Printed No. 1443. Int. 1160.

An Act to legalize, ratify and confirm the proceedings for the sale and issuance of bonds of the village of Black River in the amount of \$27,000 to raise funds for defraying the cost of establishing a water system. By Mr. Wood. To Villages Committee. (Same as S. 654.) Printed No. 1446. Int. 1163.

Concurrent Resolution proposing an amendment to section 7 of article 1 of the Constitution, relative to the drainage of lands. By Mr. Gray. To Judiciary Committee. (Same as S. 741.) Printed No. 1465. Int. 1170.

An Act to amend the charter of the city of Ogdensburg, relative to the powers of the Board of Health, and repealing certain sections thereof relating to the powers of the common council. By Mr. Gray. To Cities Committee. (Same as S. 740.) Printed No. 1466. Int. 1171.

An Act to amend article 11 of the Public Health Law, relative to the practice of pharmacy. By Mr. Conklin. To Public Health Committee. Printed No. 1481. Int. 1180.

An Act to amend the Education Law, by adding five new sections, 1110 to 1114, inclusive, relative to creating a State board of commissioners in pharmacy and conferring certain powers in respect to pharmacy on the State Board of Regents. By Mr. Conklin. To Public Health Committee. Printed No. 1475. Int. 1181.

An Act to authorize the city of Mount Vernon to make an annual appropriation for the care and maintenance of the Mount Vernon Hospital. By Mr. Coffey. To Cities Committee. (Same as S. 757.) Printed No. 1517. Int. 1202.

An Act to amend section 200 of the Agricultural Law and adding a new section, 202, relative to representations in the sale of foods kept or preserved in cold storage or refrigerating warehouses. By Mr. Ebbets. To Agriculture Committee. Printed No. 1525. Int. 1206.

An Act authorizing the city of Lockport to raise money for the purpose of improving, operating and maintaining the city hospital in said city, and to issue its bonds therefor. By Mr. Feeley. To Cities Committee. (Same as S. 729.) Printed No. 1527. Int. 1208.

An Act to amend the charter of the city of Mount Vernon, relative to the Board of Health. By Mr. Coffey. To Cities Committee. (Same as A. 1242.) Printed No. 1583. Int. 1244.

- An Act to amend sections 84, 86, 87 and 88 of the Insanity Law, relative to the care and treatment of insane persons and persons under examination as to their sanity, pending such examination and prior to their transfer to institutions for the insane. By Mr. Merritt. To Judiciary Committee. (Same as S. 766.) Printed No. 1640. Int. 1287.
- An Act relative to the extension, improvement and development of the water works, water plant and water supply of the city of Ogdensburg and the issuance of city bonds therefor. By Mr. Gray. To Electricity, Gas and Water Committee. (Same as S. 793.) Printed No. 1687. Int. 1309.
- An Act to amend section 50 of the Insanity Law, relative to wages of nurses and attendants in State hospitals. By Mr. Merritt. To Ways and Means Committee. (Same as S. 820.) Printed No. 1707. Int. 1320.
- An Act to amend sections 54 and 85 of the Insanity Law, relative to the reimbursement of the State for the support of inmates of State hospitals and the enforcement of the State's claims therefor. By Mr. Ward. To Judiciary Committee. (Same as S. 821.) Printed No. 1713. Int. 1326.
- An Act to amend sections 836 and 658 of the Code of Criminal Procedure, relative to proceedings when a person in confinement appears to be insane. By Mr. Fowler. To Codes Committee. (Same as S. 816.) Printed No. 1746. Int. 1331.
- An Act to amend the General Municipal Law, by adding nine new sections, 126 to 134, inclusive, relative to the establishment of public general hospitals for the care of the sick in any city or village of the State. By Mr. Whitley. To Cities Committee. (Same as S. 830.) Printed No. 1755. Int. 1340.
- An Act to amend sections 2, 4, 10, 12, 18 and 19 of the Drainage Law, by providing for the drainage of low or wet lands "in the interests of public health or for their improvement for agricultural purposes." By Mr. Boshart. To General Laws Committee. (Same as S. 831.) Printed No. 1761. Int. 1346.
- An Act to amend section 59 of the Insanity Law and section 1122 of the Penal Law, relative to private institutes for the insane, by providing that no insane patient shall be treated in such institutions unless a license shall have been obtained. By Mr. Ward. To Judiciary Committee. (Same as S. 819.) Printed No. 1801. Int. 1356.
- An Act to amend sections 170, 171 and 172 of the Insanity Law, relative to the Psychiatric Institute and the director thereof. By Mr. Ward. To Judiciary Committee. (Same as S. 818.) Printed No. 1802. Int. 1357.
- An Act to provide for a metropolitan water and sewerage district and to establish a water board for the supervision and control of water supply and sewerage within such district, comprising the city of Greater New York and the counties of Nassau, Westchester, Putnam, Dutchess, Rockland, Orange and Ulster. By Mr. Bates. To Electricity, Gas and Water Committee. Printed No. 1809. Int. 1364.
- An Act to amend section 167 of the Public Health Law, relative to questions submitted upon an examination for license to practice medicine, relative to mental science. By Mr. Burgoyne. To Public Health Committee. Printed No. 1815. Int. 1370.
- An Act to amend chapter 639, Laws of 1906, extending the term of the commission to investigate and consider means for protecting the waters of New York bay and vicinity against pollution, to May 1, 1913. By Mr. A. E. Smith. To Cities Committee. (Same as S. 845.) Printed No. 1820. Int. 1375.
- An Act providing for the construction of a system of storm sewers for the city of Watervliet. By Mr. Waters. To Cities Committee. Printed No. 1772. Int. 1376.
- An Act appropriating \$13,400 to enforce and carry out the provisions of the Agricultural Law, relative to pure foods and dairy products. By Mr. Oliver. To Ways and Means Committee. Printed No. 1883. Int. 1403.
- An Act to amend subdivision 4 of section 239 of the Public Health Law, relative to fines payable to the State Board of Pharmacy. By Mr. Conklin. To Codes Committee. (Same as S. 902.) Printed No. 1905. Int. 1420.
- An Act to amend subdivision E, of section 203 of the Public Health Law, relative to the payment of fines, penalties and forfeitures to the State Dental Society. By Mr. Conklin. To Codes Committee. (Same as S. 901.) Printed No. 1906. Int. 1421.
- An Act to amend section 174 of the Public Health Law, relative to fines payable to medical societies. By Mr. Conklin. To Codes Committee. (Same as S. 903.) Printed No. 1909. Int. 1424.
- An Act to amend section 23 of the Public Health Law, relative to burial and burial permits. By Mr. Wood. To Public Health Committee. (Same as S. 912.) Printed No. 1956. Int. 1449.
- An Act to amend the Educational Law by adding a new section, 1089-a, relative to the study of medicine and pharmacy by attorneys. By Mr. Wende. To Public Education Committee. Printed No. 1965. Int. 1458.
- An Act to amend section 310 of the Public Health Law, relative to the vaccination of school children, by permitting unvaccinated children to attend school in certain cases. By Mr. Green. To Public Health Committee. Printed No. 2008. Int. 1472.
- An Act to amend sections 70 and 71 of the Public Health Law, relative to conferring upon the city of New York control over the potable water supply of said city. By Mr. Joseph. To Public Health Committee. (Same as S. 927.) Printed No. 2016. Int. 1480.

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## BOOKS RECEIVED.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

**PRESCRIPTION WRITING AND FORMULARY.** By JOHN M. SWAN, M.D., Associate Professor of Clinical Medicine in the Medico-Chirurgical College of Philadelphia; Instructor in Clinical Pathology and Tropical Medicine, Philadelphia Polyclinic and College for Graduates in Medicine; Fellow of the College of Physicians of Philadelphia. Containing 1,043 prescriptions. Philadelphia and London: W. B. Saunders Company. 1910. Price, flexible leather, \$1.25 net.

**DUODENAL ULCER.** By B. G. A. MOYNIHAN, M.S. (Lond.), F.R.C.S., Leeds. Illustrated. Philadelphia and London: W. B. Saunders Company. 1910. Price, cloth, \$4.00 net; half morocco, \$5.50 net.

**A TEXT-BOOK OF PATHOLOGY FOR PRACTITIONERS AND STUDENTS.** By JOSEPH MCFARLAND, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia; Pathologist to the Philadelphia General Hospital and to the Medico-Chirurgical Hospital, Philadelphia; Director of the Laboratories of the Henry Phipps Institute, Philadelphia; Fellow of the College of Physicians, etc. Second edition, thoroughly revised. With 437 illustrations, a number in colors. Philadelphia and London: W. B. Saunders Company. 1910. Price, cloth, \$5.00 net; half morocco, \$6.50 net.

A PRACTICAL TREATISE ON FRACTURES AND DISLOCATIONS. By LEWIS A. STIMSON, B.A., M.D., LL.D. (Yale); Professor of Surgery in Cornell University Medical College, New York; Surgeon to the New York and Hudson Street Hospitals; Consulting Surgeon to Bellevue, St. John's and Christ Hospitals; Corresponding Member of the Societé de Chirurgie of Paris. Sixth edition, revised and enlarged. With 361 illustrations and 65 plates in monotint. Lea & Febiger, New York and Philadelphia. 1910.

THE DISEASES OF INFANCY AND CHILDHOOD. Designed for the use of students and practitioners of medicine. By HENRY KOPLIK, M.D., Attending Physician to the Mount Sinai Hospital; Consulting Physician to the Hospital for Deformities; formerly Attending Physician to the Good Samaritan Dispensary, the St. John's Guild Hospitals, New York; Ex-President of the American Pediatric Society; Member of the Association of American Physicians and of the New York Academy of Medicine. Third edition, revised and enlarged. Illustrated with 204 engravings and 39 plates in color and monochrome. Lea & Febiger, New York and Philadelphia.

### BOOK REVIEWS.

INTRODUCTION TO PRACTICAL CHEMISTRY. By A. M. KELLAS, B.Sc., Ph.D. Lecturer on Chemistry at the Middlesex Hospital Medical School. Oxford University Press. 1909.

This is a small book of 262 pages, which the author states has been designed to thoroughly cover the requirements of candidates preparing for the examination of the Conjoint Boards of the Royal Colleges of Physicians and Surgeons, but it is believed that the work will supply what is required by science and higher grade schools. The book is divided into five parts. Parts I and II deal with elementary theories and simple experiments in the preparation of the elements and their compounds. In Part III the systematic qualitative examination of metals is taken up, first with the blowpipe and flame reactions, and then by the wet methods.

The chief novelty in this part of the book is the tabulated summary of the properties of the chief compounds of the metals.

Part IV deals with the detection of acid radicals and Part V with quantitative analysis, mostly volumetric analysis. The work seems well adapted to beginners in chemical analysis because it explains the reasons for each step. Although written for medical students it does not include any of the organic substances, except oxalic, tartaric and acetic acids. It is in no sense adapted to the needs of medical students more than to any other clinical students, and is not a medical book.

E. H. B.

DISEASES OF THE GENITO-URINARY ORGANS. Considered from a medical and surgical standpoint, including a description of gonorrhœa in the female and conditions peculiar to the female urinary organs. By EDWARD L. KEYES, JR., M.D., Ph.D. D. Appleton & Co. Price \$6.00.

This is a book of nearly 1,000 pages which the author states is intended primarily for the student and general practitioner. For them and for the beginning specialists its clearness, detail and frank statements as to what is experimental and what known in urology, make it a necessary part of their library. The chapters on cystoscopy are concise and replete with practical, helpful information concerning instruments and technique.

The discussion of gonorrhœa omits nothing that modern methods have devised. The statement that in the clinic "most cases of acute gonorrhœa approach the three months' limit and half surpass it," should be noted by the profession generally who may help to

educate gonorrhœics that cures will not be effected in six weeks.

The statements concerning the dosage of gonococcal vaccines are too didactic in a guide book for general practitioners. Initial doses of sixty millions sometimes produce over-severe reactions.

The remarks on the use of alcohol in chronic urethritis will be read with interest by many; with assent by some. The outlined treatment of epididymites is classic, but in a text-book warning should be given concerning the danger of ice cold applications. The sensation of the patient is not always a safe guide. Overlong applications of ice have caused gangrenous spots at the penoscrotal junction and on the scrotum.

Because of the demands of current methods of collegiate teaching, a résumé of syphilis of about 100 pages, is given.

The last 150 pages contain descriptions of the various operations of genito-urinary surgery; they add much to the value of the book which is clearly printed, sufficiently illustrated and well indexed.

The vividness and vigor of the author's style make this book fascinating reading.

J. S. R.

OPHTHALMIC SURGERY. A Treatise on Surgical Operations pertaining to the Eye and its Appendages, with Chapters on Para-operative Technic and Management of Instruments. By CHARLES H. BEARD, M.D. Surgeon to the Illinois Charitable Eye and Ear Infirmary; Oculist to the Passavant Memorial Hospital, Chicago. With nine plates, showing 100 instruments and 300 other illustrations. Philadelphia, P. Blakiston's Son & Co., 1012 Walnut Street. 1910. Price \$5.00 net.

This volume deserves more than passing notice. It will be a valuable addition to the library of every ophthalmic surgeon. It is the most comprehensive volume on this subject ever published in this country. Its pages probably collate a collection of what is best and most useful and practical in this branch of ophthalmic art. And this is not accomplished in prosaic stereotype fashion, for though well ordered, the reader is made conscious of the writer's individuality, which stamps him as a lucid, concise expositor, a clear thinker, a hard worker and one of large and varied experience, which makes him eminently capable of writing authoritatively.

The volume contains 658 pages with some 400 illustrations of instruments, operations, and the first 54 pages are devoted to para-operative technic. Minute attention to detail characterizes it. Instruments and their management comprise the subject material for the second chapter of 67 pages. The author prefaces it with a quotation of his friend and one time teacher, Professor Landolt; viz. "They should be for the practitioner objects almost sacred, objects not to be profaned by vulgar hands, that he regards with fondness because of their perfection, and with respect because of their destination. He will exercise the utmost care not only in their selection, but also in their maintenance." That Dr. Beard regards them as such can be read between the lines of this excellent treatise. It is probably the most carefully prepared and painstaking description of ophthalmic armamentarium in print. Excellent use is made in the text, descriptive of operations, by reference to this chapter, as for example, on page 123: The most suitable instrument is the conical-shaped probe of Landolt, plate VIII, No. 100. In the chapter on operations upon the appendages of the eye, 34 pages are devoted to the lachrymal apparatus. Methods therein are originally and interestingly described. Threading the lachrymal canals and electrolysis of nasal duct are among the unusual subjects touched upon. A well filled chapter is devoted to operations upon the extrinsic muscles of the eye. The advancement operation of Graefe, Cretchett, Weber, DeWecker, Prince, Worth, Beard, are plainly described and illustrated. Capsular advancement, tendon shortening,

folding and tucking, tendon lengthening operations receive the same careful attention. One hundred and fourteen pages are devoted to operations upon the lids. Commencing with the simple procedure of eversion, the author minutely describes the little refinements often overlooked, which to the beginner contributes so much in the acquirement of gentleness and dexterity. Sixteen to eighteen operations for ptosis are illustrated and described. The summary of the theoretical and practical considerations involved is particularly able and well handled. In the 20 pages descriptive of cicatricial ectropion, the writer describes in length his own operation, which he designates the "Altogether Operation." In the same portion of the volume ectropion is treated, and on these two subjects alone there are 75 excellent illustrations, most of them original. The text upon blepharoplasty, epidermic and dermo-epidermic grafts is complete and explicit, as is also the methods applicable to the restoration of the conjunctival sac. In Chapter VIII 129 pages are devoted to cataract extraction. After preliminary observations as to existing condition, preparation of the patient, anæsthesia, etc., the writer minutely details the simple operation as technically practiced by himself. The description complete in detail, furnishes an excellent guide to the unskilled about to undertake the operation. The after treatment is practical and conservative. A most exhaustive and careful treatise incident to accidents occurring, their cause, prevention and treatment, follows under the headings of Immediate and Conservative.

Operations on the globe receive 107 pages, among which are Haberkamps para-centesis of the anterior chamber; cyclodialysis, its indications, contra-indications, complications, accidents and results. Notable is the author's advocacy of eviseration in almost all conditions, including sympathetic inflammation as safer, more effectual and preferable to enucleation. An excellent cut representing some 18 forms of capsulotomy is given on page 533. Major Smith's method of extraction in capsules is described and the reasons why it has not met with universal approval in this country. On dissection the author states as his belief, that the age limit once fixed, has in the minds of ophthalmologists in recent years been doubled, and cites cases and reasons.

The chapter on cataract, finishes with a historical review of methods, incisions and knives used in the past, with a description of what the author terms the modern corneal incision.

The book closes with 43 pages descriptive of the methods of localization and removal of foreign bodies from the eye.

There are few books written which cannot be justly criticised, but we can only speak in commendation of this volume. All may not agree with the text in every particular, and omissions may be evident to the individual reader, but few will question the evidence that the author has exercised great care in the selection of what is best and devoted an immense amount of labor to the elucidation of the procedures and methods described, and that it is to-day the most complete and explicit volume on ophthalmic surgery in this country.

P. C. J.

**THE SERUM DIAGNOSIS OF SYPHILIS AND THE BUTYRIC ACID TEST FOR SYPHILIS.** By HIDEYO NOGUCHI, M.D., M.Sc., Associate Member of the Rockefeller Institute for Medical Research. By J. B. Lippincott, Philadelphia, 173 pages, 14 illustrations. \$2.00 net.

This book is especially noteworthy. It comes from the pen of an authority at a time when the possibility of an accurate diagnosis of syphilis, particularly in its more obscure manifestations, has aroused keen interest in the serum diagnosis of this disease. The author describes most clearly the application of the Bordet-Gengou phenomenon of complement fixation to the diagnosis of syphilis; gives a brief but very comprehensive account of the principles of serum hæmolysis,

and discusses in detail the technic of the Wassermann reaction and of the method recommended by himself. Noguchi's modification of the original Wassermann test consists essentially in his use of a different hæmolytic system, and an ingenious method of preparing antigen, amboceptor and complement in the form of standardized reagent papers. The use of an anti-human hæmolytic system eliminates any inaccuracy due to the variable sheep amboceptor of human serum, and obviates the difficulty of obtaining fresh sheep's blood as is necessary in the original method. The reagent papers have the added advantage of being stable, convenient and of greatly simplifying the test without detracting from its reliability.

In estimating the value of the serum reaction as a clinical method in syphilitic and parasymphilitic affections, the writer presents statistical evidence in a tabulation of the results of various investigators by the different methods. In 1,082 cases of syphilis including parasymphilitis, hereditary syphilis and suspected syphilis, the results obtained by the author with the Noguchi method showed 802 positive, 234 negative and 46 doubtful cases. In a comparative study of 244 cases of syphilitic and parasymphilitic conditions by the Wassermann and the Noguchi systems, the former yielded positive findings in 183, the latter in 211 cases. Kaplan in a similar study of 1,286 cases found 995 positive cases by the Noguchi method and 826 by the Wassermann system. Tables are also given showing the results of examinations in various non-specific diseases and in certain psychiatric cases.

In discussing the marked effect of treatment upon the reaction, the author believes that in some cases the reaction persists, despite all treatment,—this being especially true in cases of hereditary syphilis,—and in conclusion adds: "While it seems settled among the profession that a positive reaction in a syphilitic case is an indication for additional treatment, it is not definitely established that the disappearance of the reaction is justification for the cessation of treatment, especially as the reaction may be quickly affected by treatment."

Noguchi also describes a chemical test, the butyric acid reaction, which is dependent upon the increased protein content of the blood serum and the cerebrospinal fluid in syphilis. This reaction is not specific in character, occurring also in all acute and subacute inflammations of the meninges. While a positive reaction therefore does not necessarily indicate leucic infection, a negative one is of value in excluding syphilis. As the author says: "It can be employed to establish or confirm a deduction based upon the clinical history and the results of the Wassermann reaction and thus become indirectly of diagnostic value."

An extensive bibliography is appended which will prove of great service to one searching the voluminous literature on the subject. A glossary of technical terms in serology is added and about sixty definitions given.

A well arranged index also serves to enhance the usefulness of the book.

It is a book of clinical interest to the practising physician, aiding him in an intelligent interpretation of the Wassermann reaction, of real value to the student, giving him an adequate and concise knowledge of the principles of hæmolysis and complement fixation; of practical worth to the clinical laboratory worker, giving in detail the technic of the original and also of the author's modified and simpler method of the serum diagnosis of syphilis. O. T. A.

## DEATHS.

- G. A. BRADBURY, M.D., Troy, died April 9, 1910.  
 AUGUSTIN H. GOELET, M.D., New York City, died April 26, 1910.  
 FRANK W. MYRICK, M.D., Binghamton, died March 21, 1910.  
 J. O. PINGRY, M.D., Millbrook, died April 11, 1910.  
 JAMES D. SPENCER, M.D., Watertown, died May 5, 1910.

# NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

ALGERNON THOMAS BRISTOW, M.D., Editor  
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## EDITORIAL DEPARTMENT

### BULLETIN NO. IV!

**B**ULLETIN No. IV of the Carnegie Foundation for Teaching is a bulky octavo volume of some three hundred and fifty pages. The author is evidently of the opinion that it is the last word on the subject of medical education and writes in a style of insolent self-sufficiency. Each chapter and page of the book should bear the legend "When I ope my mouth let no dog bark." Modesty has not been included in the category of his virtues. The positiveness of his conclusions would be becoming in a decision of the Supreme Court of the United States, but are hardly justified either by the eminence or the authority of the writer unless, indeed, authority is to flow from unlimited access to the pocket of a multimillionaire.

There are many poorly equipped schools of medicine in the United States. Every educated and intelligent practitioner was aware of this fact before the author of Bulletin No. IV made this surprising discovery. Few medical schools, even those affiliated with real universities are perfect unless we except that of Johns Hopkins. Even in Baltimore it seems strange to look over the list of the Faculty and perceive that some of its most brilliant names are those of graduates of so-called independent schools of medicine stigmatized in the report. Welch and Halsted are both graduates of the College of Physicians and Surgeons, New York, which, at the time of their graduation, had nothing but a nominal connection with Columbia. The professor of obstetrics is a graduate of the Medical Department of the University of Mary-

land, thus characterized in the report "Essentially an independent institution with a university charter, though nominally the medical department of St. John's College." Shocking to relate, "dividends are also paid to the faculty." The brilliant professor of Diseases of the Genito-Urinary System is a graduate of the Medical Department of the University of Virginia. "Until three years ago the department was a didactic school," wails the critic.

It thus appears that some of the most eminent of the brilliant faculty of the institution which the editor of the Bulletin considers a model are products of a system which is declared to be a thing of the past. There were giants in those days, then! The days of Gross and Keen, of Bartholow, of the elder Da Costo and Weir Mitchell in Philadelphia; and in New York of Henry B. Sands, Markoe and Willard Parker, Frank Hamilton, of Dalton, Flint and Loomis. Space fails us to enumerate the giant figures of this "system of the past" which tower over the arrogant and self-confident present. The vision of the author of this report is like a photographic lens at full aperture. It has no penetration. It needs stopping down. Everything is focused on one plane, the plane of the laboratory and the university, and nothing on either side of this plane is in focus. The writer appreciates the uses of laboratory instruction, acknowledges with gratitude his personal debt to laboratory training acquired late in life, but it is not the whole thing by any means. If we are to turn out men fairly well informed in the history and treatment of diseases, we must of necessity be compelled to combine didactic teaching with laboratory training. In teaching there are two goals to be reached quite distinct—the training of practi-

tioners of medicine and the training of investigators. For the latter class laboratory training is of prime importance. The life of the investigator is to be spent in the laboratory and all his facts should be gathered there at first hand, because that is itself a part of his training. But a practitioner of medicine goes out into the world to treat disease as he finds it. If there is no yellow fever in the hospital is he to be denied an account of the disease because forsooth this is didactic teaching and therefore anathema? The medical student during his four years course must, from the limitations of time, hospital space and hospital material, be denied the sight of most of the diseases and injuries to which we are subject. At best he will form a superficial acquaintance with those which are more common. Because the teaching must be didactic shall he, therefore, be denied an account of clinical facts he does not meet in the hospital wards, and does not the undeniable fact before mentioned require that all diseases and injuries should be taught didactically as well as from actual clinical cases. As an example of the manner in which the system advocated and lauded by the *Bulletin* may break down, the following may serve:

The writer was one of the examiners on the board of a large hospital. He put this question to a graduate of one of the most famous advocates of the purely clinical and laboratory method of teaching. "Describe the different injuries about the elbow joint and state your method of differential diagnosis." The candidate hesitated, and then by way of explaining his failure, said, "Doctor, the initial letter of my name is in the latter part of the alphabet, consequently I did not reach the hospital wards until late in the term. As we are not taught anything we do not see in the wards and as there were no injuries of the elbow there at the time, I cannot answer your question." The natural reply of the institution in question would be, "Oh, we don't send you our best men." True, but he was nevertheless a graduate of the school, signed, sealed and delivered. A graduate of one of the despised independent schools, a thing of the past, gave a clear answer to the question. Which of these two men would have been most competent to handle an injury of the elbow in actual practice, the man who knew nothing about it whatever or the man who had a clear idea of the subject from didactic teaching?

It is no doubt highly desirable that every man who graduates in medicine should have seen examined and diagnosed every disease and injury flesh is heir to, but few aged professors, even in the great schools of Europe can say as much, and as long as this is a fact it is the height of folly to decry didactic teaching as does the *Bulletin* and put the laboratory and the hospital on a pinnacle which few students can reach—the act of a doctrinaire and mere theorist who thinks that men and women are merely exag-

gerated test tubes to be put in racks and tested with his special reagents. Until recently the writer thought it of enormous advantage for a medical school to be in close relationship with a university, an affiliation upon which the *Bulletin* so strenuously insists. In this State the leaders in medical education have been fighting a most strenuous battle with the anti-vivisectionists. The past winter the campaign was more bitterly fought than ever. The presidents of the universities of three medical schools were appealed to for the assistance of their personal appearance on the platform. They all refused on various pretexts, one of them saying with commendable prudence that he "preferred to fight behind the breastworks." In other words, as soon as it was found that persons of large wealth were interesting themselves in the anti-vivisection movement it was prudent to do nothing to alienate contributions to the university, even though one of its most important schools was viciously attacked.

For years the medical profession of this and other States have protested against the licensing of the mechanical fitter of glasses, otherwise the optometrist. It has rightly contended that refraction is something more than a mechanical affair and that only a well qualified physician is competent to do refracting work. As it is, the optometrists are constantly fitting cases of glaucoma with glasses and committing other absurdities. One of them lately made the grave statement to a patient that he was suffering from a dense cataract and atrophy of the optic nerve. He did not explain how he saw the disc through a cataract. It is stated with some appearance of authority in the public press and much unfavorable comment (*New York Evening Sun*, June 3d, "A Deplorable Innovation") that Columbia University is about to establish a course in optometry. We trust that the severe criticism of the *Sun* is based on erroneous information. It does not seem possible that so treacherous a blow would be struck at its medical department by the University, and it is impossible to conceive that such a course can have the assent of the Medical Faculty. What then is a university connection doing for a school which won its great reputation while practically independent? The university authorities gave the school no real support against the faddists and now proceeds to encourage quackery by teaching it, Heaven save the mark, as a university course. If these are some of the advantages of a university connection there is still a place for the Independent school properly conducted. With many of the conclusions of this self-sufficient volume we have no quarrel. There is much useful information and valuable criticism to be found within its pages. It is a pity that the arrogance of its tone and the air of absolute intolerance and finality with which it has been written should mar an otherwise useful work.

A. T. B.



## Original Articles.

### OBSERVATIONS ON THE PATHOLOGY, DIAGNOSIS, AND TREATMENT OF JOINT TUBERCULOSIS.\*

By LEONARD W. ELY, M.D.  
NEW YORK.

FOR some time past we have been assembling tuberculous joints removed by various men in several hospitals, and have been examining them in the laboratory macroscopically and microscopically. We have also hunted up the histories of the patients from whom these joints were removed, and, where it was possible, we have followed the patient after his discharge from the hospital. A number of the patients were our own. In this way we have been able to compare clinical manifestations with pathological findings, and have learned much of interest. A distinguished German writer<sup>1</sup> on bone and joint tuberculosis in a recent edition of his book modestly says that some eleven years before he "furnished the stones almost to complete the structure of the pathological anatomy" of this subject; and it is evident throughout the work that this was not the only part of the subject that he considered finished. In point of fact, there is still much to be learned, not only of the pathology of joint tuberculosis, but also of its diagnosis and treatment, and considerable difference of opinion exists as to the meaning of the facts in our possession. In the time allowed to us to-day we shall touch briefly upon some of the main points of interest in the joints of the extremities.

In the first place, let us understand clearly what we mean by the term "joint tuberculosis." It is the reaction of the tissues of the joint to the presence of the tubercle bacilli and of their toxins, though why these should almost invariably lodge at or near the joint, and why the disease so rarely involves the shaft, are questions never yet satisfactorily answered.

As to the pathology: we shall not describe minutely all the changes in the joint that may be found in any text-book; but we shall endeavor to bring out a few points derived from a study of about sixty joints.

1. There are two general types of the disease: the primary bony and the primary synovial. These types have been generally recognized abroad, but in recent years the custom has prevailed in America of regarding all joint tuberculosis as of bony origin. This is, in our estimation, an error, and has given rise to much confusion. A focus in the bone may later involve the synovial membrane, and vice versa; but, on the other hand, either one may exist alone in-

definitely. The disease may start in bone, break through the cartilage or at its side into the joint, involve the joint cavity, and then spread to the other bones of the articulation; or it may involve a portion of the joint, and leave the rest almost normal. Again, the tuberculous process may start near a joint but never break into it. It must be borne in mind that the bony structure itself is never involved directly in this. The tuberculous focus is in the marrow and spreads in the meshes of the bone, killing the trabeculæ by pressure. Sometimes this bone destruction is in mass, and a sequestrum is formed, sometimes in minute particles, giving us the familiar "bone sand." Under the microscope the bone trabeculæ can be seen to have undergone rarefying or productive osteitis. The bone in the vicinity is apt to be rarefied and cuts easily with a razor; but, on the other hand, it may be harder than normal, and this is perhaps the rule in synovial disease.

In the primary synovial type, the synovial membrane is thickened and thrown into folds, especially in the recesses of the joint, and on section is often seen studded with tubercles. Often its free surface is coated with layers of fibrin that later become infiltrated by the tuberculous granulations, and sometimes break down and become necrotic. Frequently the process is characterized by the formation of greatly enlarged villi or by large tabs hanging free, and these may become loose and float about in the joint. The disease may spread all over the synovial membrane; or it may be localized in one spot. This is an important point not usually remembered. In one of our specimens several hard bodies about the size of a pea could be felt in the synovial membrane, which on section proved to be collections of cheesy material. Over them the synovia appeared normal.

2. It is a mistake to regard this synovial disease as springing from an effusion into the joint, as König does. The effusion is secondary to a disease of the synovial membrane, not the cause of it. The fibrinous layer often found upon the free surface of the cartilage is not precipitated from the fluid in the joint, but grows in from the margins, and has been said by others to be simply the result of immobility in the joint. The majority of these specimens show an obliterating endarteritis, sometimes of a marked degree. This might be regarded as nature's effort to shut off the blood supply in the diseased area.

3. It has been maintained by some writers that syphilitic joint disease is so rare as to be almost negligible, but in some of our supposed tuberculous joints the thickened blood vessels surrounded by round cell infiltration, and the general appearance of the tissues made us think that they were really syphilitic. We have undertaken the task of staining smears from these joints with a view to discovering the spirochete pallida.

\* Read at the annual meeting of the Medical Society of the State of New York, at Albany, January 25, 1910.

<sup>1</sup> König. Tuberculose der Knochen und Gelenke.

4. "Villous arthritis," is not a pathological entity. Large villi may be found in tuberculous, hæmorrhagic, and possibly in syphilitic joints as well as in those in which we search in vain for the cause of the disease. To say that a joint is the seat of villous arthritis is simply to say that it is inflamed.

5. Sometimes a joint is opened and nothing more is done than the removal of a piece of synovial membrane or of a joint fringe, for diagnostic or therapeutic purposes. The cartilages are seen to be smooth and the bones appear normal. The joint is closed again. Later, on account of the aggravation of the symptoms or because a pathological examination reveals tuberculosis, a resection is done, and the cartilages are found badly eroded, and the joint evidently undergoing rapid disorganization. This in our opinion is not to be interpreted as a failure of the previous operator to recognize the state of affairs at the former operation, but as the lighting up by operation of a slow synovial process.

The tendency of the tuberculous granulation tissue to break down, and to undergo necrosis and liquefaction, is well known. In this so-called cold abscess pieces of dead bone may be suspended. These collections of fluid, sterile except for the presence of tubercle bacilli, may secondarily become infected by germs of supuration, and introduce a serious complication, of which more hereafter.

6. Healing of adult tuberculous joints usually takes place by the formation of connective tissue. Sometimes the diseased area is walled off in this way, only to break out again into activity after the lapse of months or years. Areas of calcification are occasionally found in the older cases. It is the writer's opinion that healing after abscess formation is much more likely to be permanent than that which has been brought about by encapsulation with connective tissue. In rare instances, healing takes place by formation of a bony ankylosis.

7. The one fact that seems most prominent to me in the study of these specimens is the destruction of the joint, not by any poison or germ, but by nature in her effort of cure.

*Diagnosis.*—A correct diagnosis is absolutely essential to the proper management of these cases, and the making of one from the symptoms and physical signs may be quite easy, it may be difficult, or it may be absolutely impossible. This statement will, no doubt, fail of acceptance in some quarters, but it can be verified by anyone who will take the trouble to submit his own work and that of others to a rigid scrutiny. We should not accept any man's opinion in these matters, but should expect him to prove what he says. In a general way it may be said that the diagnosis is easier in a child than in an adult. Of the joints in our collection resected by various men, most of them in hospitals, some of them our own work, about one-third were sent in

with what appears from a careful pathological examination to have been an erroneous diagnosis. That is, not only was the diagnosis, based on clinical symptoms, wrong, but it was often not even corrected at the time of operation. The pathologist and the clinician have been working with a fine scorn of each other, instead of comparing notes and trying to work together. It is often as difficult for the pathologist to tell from a clipping from a joint what the correct diagnosis is, as it is for the surgeon to tell from a clinical examination. Each should possess a knowledge of the other's subject. I have examined in vain for tuberculosis a piece of the synovial membrane of a knee joint I had been treating conservatively for years. Later, the joint was resected by another surgeon, and a thorough examination of it in the laboratory showed a small area of tuberculosis, about one centimeter in diameter, in the synovial membrane. This patient, by the way, had given no reaction to the von Pirquet test. I have seen specimens from a joint submitted to two different laboratories. One showed tuberculosis, the other did not. All a pathologist can do here is to tell whether the piece of tissue submitted to him shows tuberculosis. If it does, then his report is conclusive; if it does not, we are still not sure of our ground. Numbers of such instances could be quoted. Were these facts appreciated resections possibly would be less frequent.

Tubercle bacilli may sometimes be found in the fluid in the joint, or even in the diseased tissues, but they are usually so few in number that the failure to find them is no proof that tuberculosis is not present.

An X-ray plate will often be of assistance, especially if there be a distinct bony focus, but sometimes the interpretation of a skiagram is a matter of debate.

We see, then, not only that a clinical diagnosis is not conclusive, but also that a pathological examination of a piece of tissue from the joint may also be unreliable, and that an X-ray plate may not be conclusive.

*Tuberculin Tests.*—These are to be viewed in the light of confirmatory evidence, and while not infallible are extremely important. From my own experience I can say that a patient may have a tuberculous lesion in his joint and not respond to a tuberculin test, but this must be very rare. On the other hand, a patient with a tuberculous lesion somewhere in his body may give a positive reaction to the test, while at the same time the cause of his joint disease may be some other than tuberculosis.

Our experience at Sea Breeze Hospital with the tuberculin tests may be of interest. At first the Calmette test was used, but later this was abandoned, and the von Pirquet and modified Moro tests were substituted. The Calmette test was used alone thirty times, with the von Pirquet

test, eleven times, and with the Moro, five times; that is, in all in forty-six cases. Of these, a reaction was obtained at the first attempt in thirty-seven, at the second in five, and at the third in four; therefore, a positive reaction in every case, but inasmuch as repeated tests are of no value, these last nine are to be viewed as negative. The Moro test was done alone or in combination as above on twenty-four cases, in all but one of these once only. This one case gave the reaction at the second attempt. Of the other twenty-three cases, nineteen gave a positive reaction. Of the four that did not, two were diagnosed tuberculous hips, one tuberculous ankle, and one tuberculous dactylitis. With the exception of one negative test on a cured case that had long ago left the hospital, and in which the diagnosis is now open to debate, the von Pirquet test was not done alone. In eleven cases in which it was done on the same patients as the Calmette test, it was positive at the first trial.

To sum up: We find that the tuberculin tests are a very reliable means of diagnosis. There is one more means of diagnosis available when the joint contains fluid that is not used as often as it deserves; namely, the animal test. The joint is aspirated and the fluid is then injected into the abdominal cavity of a guinea pig. If at the end of six weeks the animal is still alive, it is killed and a post mortem examination is done to discover any lesions of tuberculosis. Usually, if tubercle bacilli be present in the fluid, the animal will die sooner.

Here then are five methods of diagnosis at one's disposal, of which the second (an examination of a specimen from the joint) is not ordinarily practicable. If a joint appears clinically to be tuberculous, a routine tuberculin test should be done before proceeding to any operation. If then any doubt exists as to the diagnosis, resort should be had to the guinea pig test.

*Treatment.*—This may be considered under two main heads: constitutional and local; and the latter again under conservative and operative.

The importance of constitutional treatment is well recognized in theory and usually completely neglected in practice. Fresh air and good food are almost as important in joint tuberculosis as in pulmonary. The custom of treating these cases in the indoor wards of a city hospital is an anachronism, for which the medical profession is largely responsible. It is much easier to treat them near at hand than to go out into the country to look after them. For those in the city who must be treated in their own homes, the streets, the parks, a roof, or a fire-escape are to be preferred to indoors. In the country the problem is simplified. At night the windows must be open wide, winter and summer. The relative benefit of seashore and inland is still a

moot point. The results obtained at the Sea Breeze Hospital in some cases are remarkable; doubtless they are due in large measure to the pure air practically free from dust or germs, and to the more equable temperature. Children with serious joint disease run about, fat and apparently well. Adenoids and enlarged or suspicious tonsils are to be removed. The tonsils are to be excised, not simply trimmed off. They are considered to be often the port of entry for the tubercle bacillus, though they will be rarely themselves found tuberculous. It has recently been our practice at the Sea Breeze Hospital to examine the excised tonsils microscopically for tuberculosis. In every case but one the result has been negative. In this one case the tonsil showed typical tuberculosis.

*Local Treatment.*—Conservative. This is the treatment par excellence in children. Here the knife is almost always useless or worse, except for an amputation, and this to save life. Frequently the appearance of the joint strongly urges a cutting operation, but the temptation must be resisted. The recuperative powers of the tissues in children are remarkable, and as long as there is no visceral complication, no joint, however badly involved, is to be considered hopeless. After the joint has been put in the best functional position, it is to be deprived of function; that is, it must be immobilized, imitating thereby nature's method of cure. The best means of immobilizing a joint usually is the plaster-of-Paris dressing. Braces may be used to meet special indications. Fixation is the keynote of the treatment, though traction in disease of the hip or knee still has some advocates. In the early stages, rest in bed is an excellent adjuvant, especially if much pain be present. Later on, with a properly fitting splint, the patient may be allowed to exercise as much as he comfortably can.

Conservative treatment may also be tried for a few months in the synovial tuberculosis (the so-called hydrops tuberculosis) of adults. On good authority it is maintained that some cases will recover in the course of six months, though personally I am skeptical of it. At any rate, in view of the difficulty of making a positive diagnosis in these cases, it is well to give the joint the benefit of the doubt, and to postpone radical treatment until all doubt has been cleared up. Injections of iodoform and glycerin may be tried. Good results have been claimed for the Bier treatment in this stage, but as yet we have not been able to confirm them. Too much time must not be lost in the attempt to treat conservatively a tuberculous joint in an adult. If there is no marked improvement in six months, the chances are small that the patient will recover with anything better than a stiff joint, and this only after the lapse of years. We can give him the same result by a radical operation in a few months.

The treatment of abscesses comes under the head of conservative treatment. Inasmuch as these are the cause, if they become secondarily infected by the germs of suppuration, of many of the deaths from joint tuberculosis, they should never be allowed to rupture spontaneously, but should be aspirated into a vacuum bottle; and then their cavities should be injected with iodoform ether mixture<sup>2</sup> repeatedly, until they cease to refill. If they rupture in spite of our efforts, and sinuses form, recourse may be had to injections of bismuth paste;<sup>3</sup> and Bier's treatment by passive hyperemia may also be used with hope of success. No curetting should ever be practiced. The curette has small place in joint tuberculosis, and one who has examined under the microscope the walls of an infected abscess realizes its inefficacy.

*Operative Treatment.*—In children the only radical operative treatment ordinarily consists of an amputation. As already said, on account of their recuperative powers, conservative methods are to be followed until no hope exists of saving the limb. In cases where the X-ray shows the presence of sequestra, these must be removed by a cutting operation before healing can be expected. In such operations a minimal amount of damage should be done to the surrounding tissues. The sequestrum can be removed with forceps, and the bed of velvety granulations surrounding it should not be disturbed.

With adults the case is different. Except in the instance of tuberculous hydrops mentioned above, conservative measures should not be followed longer than is necessary to make a positive diagnosis. In a few cases characterized by one or two loose tabs of tuberculous tissue hanging free in an otherwise normal knee, the joint may be laid open, and after these have been excised it may be sewn up again. Sometimes a cure is said to result.

About a year ago, I brought forward a theory and plan of operation based upon pathology and clinical experience.<sup>4</sup> It rests upon the hypothesis that tuberculosis exists in and about a joint because it is a joint and possesses motion, and that nature cures by abolishing motion more or less completely, usually by fibrous tissue, rarely by bony union. In the chronic forms occurring in adults, the processes of extension and repair go on at the same time in different parts of the joint. The repair never seems to be active enough in adults actually to cure the disease, and the process leaves a damaged joint with very little motion and one always liable to a recurrence of the disease. What we should do is not only to imitate nature, but try to be more thorough. My operation is based on the theory that if we can obliterate the joint and obtain bony union by first intention the disease will die

out. Heretofore, the best opinion has been that in a resection one must go wide of the disease and attempt to eradicate every particle of tuberculous tissue. This is not only impossible, but also unnecessary. Our idea should be simply to obtain bony ankylosis at operation and to secure union of the wound by first intention. Nature will take care of what is left behind. The advantages of this plan are numerous. In the first place little bone is sacrificed, in the knee about five-eighths of an inch instead of two inches, in the hip about the same, as the illustrations show. The operation is quickly done; there is less hemorrhage and less tendency to infection of the wound, and the ends of the bone are much more easily held in place. The wound may be drained with a cigarette drain for twenty-four hours, or it may be sewn up tight. The joint must be immobilized. Of course, this operation is adapted only to joints of which the bones are still in fairly good condition and in which there is no secondary infection. It finds its greatest use in the knee and hip. In the shoulder where motion is to be greatly desired, and where ankylosis is hard to obtain, possibly the old method of complete excision is to be preferred. In the wrist and tarsus, for manifest reasons, the production of a complete ankylosis is impracticable. In these joints, it will be remembered, the disease is extremely difficult to eradicate.

For some time, I have been resecting joints with this theory in mind, but only recently have I carried it out to its full extent. My last patient had had knee joint tuberculosis of the synovial type for seven years, and his bones had at length become involved, driving him to the operation he had so long shunned. No sinuses were present. An incision was made straight across the patella, and this was sawn in half, and the fragments turned up and down, giving good access to the joint. No attempt was made to dissect away the badly diseased synovial membrane, except enough to expose the bones. About three-eighths of an inch was removed from the condyles of the femur, the cartilage was chiseled from the inner aspect of the patella and from a corresponding area of the anterior aspect of the femur, and then from the tops of the tuberosities of the tibia. A purulent collection, the size of a pea, was scraped out from the head of the tibia. As the crucial, lateral, and posterior ligaments had not been divided, there was no tendency to displacement, and when we came to correct the slight posterior subluxation, the ends of the tibia and femur came tightly together and locked firmly in place. Deep chromic cat-gut in the lateral aponeurosis and superficial silkworm gut closed the wound, except for a cigarette drain which remained for twenty-four hours. Plaster-of-Paris enveloped the limb from groin to toes. The patient left the hospital in twenty-three days.

It is too early to base any conclusions on this case, the second in which the idea has been fol-

<sup>2</sup> Olive oil, 50; ether, 50; iodoform, 5; creosote, 2.

<sup>3</sup> Bismuth subnitrate, 1; vaseline, 2.

<sup>4</sup> *Medical Record*, Oct. 2, 1909.

lowed to its logical conclusion, but I am convinced that the procedure is based on sound principles, and I recommend it to your consideration.<sup>5</sup>

The points to be emphasized, in conclusion, are:

1. From the Pathology: Tuberculosis of a joint, unlike cancer, does not overwhelm it, and make its total eradication necessary. Areas of repair and extension exist side by side, and much of the tissue is practically normal. Motion keeps the process alive.

2. From the Diagnosis. Spare no pains to make a positive diagnosis before opening a supposedly tuberculous joint.

3. From the Treatment. As a rule, cure your tuberculous joints in adults, where possible, by producing bony ankylosis, and leave nature to clear away the tuberculous soft parts left behind. In operating on the knee, secure good exposure, and be guided by what you find. If drains are used, remove them early, and by every means avoid secondary infection.

### DISCUSSION.

DR. REGINALD H. SAYRE, New York City: I did not expect to be called upon to participate in this discussion. I only heard the latter part of Dr. Ely's paper and I am not in a position to discuss it thoroughly. I am glad to see from looking at the abstract of the paper that he says tubercular synovitis exists much more frequently than has been supposed. It certainly exists clinically for us, although some of our foreign friends deny the existence of it except as secondary to an osteitis. I think I must have misunderstood Dr. Ely. He cut out such a large part of his paper that he gave a wrong impression. I understood him to say that the only operation to be practiced in children is amputation. I think I must have been mistaken in understanding him to say so, because there is no question that in certain cases excision is a necessary and a useful proceeding in tuberculous joints in children, although as a usual thing if the disease is diagnosticated sufficiently early the case never proceeds far enough to require excision. As I understand him, he advocated very great slowness in interfering with a tuberculous joint, and speaks of several cases where there was a slight amount of disease seen at the time of the first investigation, but which subse-

<sup>5</sup> The first case was in a man of about 22 who had been treated conservatively by me for about six years with a diagnosis of tuberculous knee of the synovial type. He had resolutely refused resection but had undergone two partial synovectomies. An examination of a piece of the synovial membrane had shown simply enlarged villi but no tuberculosis, and therefore we changed our diagnosis. To the few degrees of motion persisting in the joint we attributed the persistent pain, and at length persuaded the patient to submit to a resection merely to obtain ankylosis. This was done by Dr. Brewer, of New York, on April 25, 1909. The patella was removed and the articular surfaces of the tibia and fibula were simply shaved off. Manifestly in such an operation the entire synovia could not be removed. The laboratory examination showed tuberculous synovial membrane and no bony involvement. The patient now has bony ankylosis and no sign of active disease.

quently presented very great destruction of the joint. I believe that is probably very true and that a good many joints are sacrificed by too early interference, which by rest and quiet would have been cured by nature without any exploration. I was much in favor of very radical removal of all tuberculous tissue in these so-called tuberculous abscesses a good many years ago; but further experience has convinced me that this course is wrong, and that nature can look after these possibly better than the surgeon in the great majority of cases. As long as the patient's condition is good, as long as the temperature is below 100, and the patient's appetite is good, many of these collections are vastly better left alone than interfered with, whether by aspiration or a more radical operation. It is difficult to effect a thorough cleaning out without infection of other parts of the body, and if we leave these so-called abscesses to be absorbed and cut off from the rest of the system by nature's protective agencies, we do better than by early and too radical interference.

DR. NATHAN JACOBSON, Syracuse: Just a word or two in regard to these cases of tuberculous joints. It seems to me that with many of the newer methods we can arrest the progression of the tubercular processes involving joints. There was a time when it was advocated that the right course to pursue was early invasion of the joints. I do not like the term that has been used, "surgical interference." It is perhaps surgical interference to operate at the wrong time and upon the wrong kind of case, but a surgical procedure which is justified never deserves the designation of surgical interference. There are, however, many methods to-day which we can use in these tubercular processes which will favor limitations of them. For instance, the method of Bier by producing hyperemia, the use of X-ray, or the high frequency current, superficial cauterization, and rest by fixation. All these are processes which, when used judiciously, will many times arrest the tuberculous process and obviate the necessity of surgical operation. But the time comes in some cases when either because of deposits or because of neglect they require surgical attention. Then comes the question as to how far we are to proceed. I do not believe it is possible to lay down a radical rule as to whether we should take away a small or a large fragment in all cases. Each case, I believe, must be a law unto itself, and during the past two years I have had two cases of extreme invasion of joints, in which other surgeons have said nothing but amputation would be of any service. In both of these cases extensive resection has led to such splendid union and to such splendid results that I cannot but feel that this is the procedure to be carried out whenever it is possible to do so. In those cases where there is extensive destruction there

should be the radical removal of all foci, as the satisfactory results justify such wide removal of the diseased tissue. It is only necessary to bring the parts together in proper position without any suture, to secure firm union or a useful joint; and not only that but a splendid return in the general improvement of health. These patients take on flesh, they become vigorous and where they have led useless lives, because of restriction on account of disease, they become able to be self-dependent and useful citizens.

As to the manner of early operation which Dr. Sayre referred to I do think there is question as to how far we shall proceed in operative measures in cases where the children are young. For instance, so far as the shoulder is concerned, I have a case in mind which I operated upon when the girl was nine years of age. She is to-day twenty-four years old. We did not think we had done much in the way of disturbing the epiphyseal area. There was only limited invasion of it, yet that girl's arm is four inches shorter than its fellow. It is a useful extremity. If that was a lower extremity and there was a difference of four inches it would be a different proposition and it would not be a useful extremity. It is wise to make every effort to avoid a surgical operation in children who have not completed the period of epiphyseal growth.

The paper of Dr. Ely is most instructive and I appreciate it very much indeed, and I wish to thank him for having presented the subject in such an admirable manner.

DR. ELY (closing the discussion): In regard to Dr. Sayre's remarks about resection of the joint in children as opposed to amputation, he did not misunderstand me. As I said in the paper, children's joints are capable of cure by conservative means when there is apparently reasonable hope of cure. We never give up hope of saving a joint or joints until other viscera have been involved.

In regard to laying open the joint by operation Dr. Sayre said possibly there were cases of slow progress and could have been cured if left to conservative treatment. I have in mind two or three cases, and among them two old cases, one of synovial tuberculosis of seven years' duration. He presented a little fluid in his joint, but no evidence of bony involvement. Another has gone on for seven years. A little operation was done. The joint was opened. The surgeon looked into it, saw two or three tabs, cut them off, and thought that would be all that was necessary. Typical tuberculosis was revealed by looking at the tabs. This operation was followed by resection two months later. At the time the cartilages had grown over the condyles of the femur, and the joint was in a bad state of disorganization. The theory of aborting joint tuberculosis is a most attractive one, and after

we have been treating a few cases of joint tuberculosis we come to the conclusion we can do it; but after years, after we watch our cases, we find we do not abort any of them. We cure them by conservative means in children, and we affect a cure in adults by conservative means but rarely. Now, when we come to look at the joints in the laboratory, the entire joint removed for tuberculosis, we see why so many tuberculous joints are cured in adults by conservative means. About 33 1-3 per cent. of the joints taken out show no signs of tuberculosis. Nobody can diagnose tuberculosis of a joint from the clinical manifestations very often.

I have here some specimens of joints that I am going to pass around. In one I advised resection for tuberculosis, and it was done by another surgeon, and yet not a sign of tuberculosis was found. I have that joint myself and it shows not one sign of tuberculosis. That is one of my own mistakes. These tuberculous joints could have been aborted readily by mercury and iodides.

### THE RHEUMATISMS; THEIR ETIOLOGY AND PATHOLOGY.\*

By EGBERT LE FEVRE, M.D.  
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"THE Rheumatism" is such a comprehensive subject that if considered in its widest sense it would occupy more time than is set for it in this symposium. It will be possible to only consider certain phases of the subject. The task is made still more difficult from the indefiniteness of our knowledge of their nature, and as is always the case when our knowledge is incomplete, our mental conception of the subject is chaotic. The term has been a convenient one to include arthritic, neurotic and myalgic pains dependent on divers causes and of obscure origin.

While our knowledge of their nature has been steadily advancing, much of the old misconceptions and the deductions that were drawn from them dominate our idea of this group of affections and influence our treatment. Unfortunately advance in our knowledge has not lead to its practical application. In common with all chronic diseases, there seems to be an antipathy to careful study of individual cases so as to arrive at a better knowledge of the causal factors (for there are frequently more than one) in each case. The tendency has been to be satisfied when the diagnosis of "rheumatic" has been made in any case of obscure joint condition or painful sensation and where a name has been accepted then treatment becomes routine.

From the earliest days of medicine, the cause of rheumatism has engaged the attention of

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medical men, and the theories that have been accepted at different periods is a fairly accurate index of the status of the general knowledge of medicine and allied science of that time. Considering only the later day theories, the most prominent have been:

1. *Exposure to cold, dampness and sudden changes in temperature.* The traumatic effect of these factors were deemed adequate to induce an attack, when there was deficiency in the healthy tone of muscles, nerves and tissues of the joint. This theory made the disease one of local inflammation, with symptomatic fever. The chief support of this theory was the relation of the disease to climate, season, social conditions and occupation of the patients.

2. *Chemical Theory.*—This was predicted on the general accepted theory of the humoral nature of disease, from the presence in the blood of some peculiar principles, either one entirely foreign or an increase of some normal ingredients. Lactic acid was considered the morific agent in rheumatism (Prout and Richardson) as uric acid was in gout. As the skin was the main channel of elimination for lactic acid, pathological increase in the body was caused by cold checking secretion of the skin, especially if the lactic acid content of the blood was increased by bad or insufficient nourishment. This theory found wide acceptance on account of the profuse hyperacid sweat and highly acid urine in acute rheumatic attacks. Even to this day it is the basis for the alkaline plan of treatment. The only experimental support for this theory was in the observations of Richardson (W. B.) who by injecting lactic acid into the peritoneum of dogs produced in some peri and endocarditis, but no joint symptoms occurred during life nor morbid appearance in the joints after death. As clinical corroboration has been cited three cases of diabetes under lactic acid treatment in whom acute rheumatism occurred. The failure of the exclusive alkaline treatment did much to discredit this theory.

Later the lactic acid theory was modified by the discovery that during exercise sarcolactic acid and acid phosphate of potash were formed in the muscles and it was supposed that cold acting on the skin may check the elimination of these substances and cause their accumulation in the body. This hypothesis, it was claimed, explained why the muscles and joints and aponeurotic tissues were first and chiefly affected when exhausted by functional activity. While temporary checking of elimination might be sufficient to cause a temporary retention of sarcolactic acid of overprolonged muscular exertion, it does not explain the excessive acidity of the weeks of the disease, with free and often excessive sweating.

3. Closely connected with the chemical theory was the *toxic* theory due to disturbance of

digestive processes, intestinal putrefaction, absorption of toxic matter from the intestinal canal, and secondary disturbance of metabolism with products of suboxidation. This auto-intoxication reduces the resistance of the patient and favors microbic invasion, and this double condition causes cardiac and other visceral complications. This theory allied all rheumatic conditions to gout, and attempts by the introduction of secondary microbic invasion to meet the objections raised.

4. *The Nervous Theory* originated with Dr. J. K. Mitchell, of Philadelphia, in 1831. Cold was the exciting cause of rheumatism, acting directly on the vasomotor or supposed "trophic" nerves of the articulations it caused inflammation of the joints, or acting on the peripheral ends of the sensory nerves, through these nerves it excited the vasomotor and trophic nerve centers. The joints (local) lesions were of trophic origin and the fever due to hyperactivity of the nerve centers supposed to control the chemical changes going on in the body. This theory did not hold that there was a definite central lesion of the nervous system associated with rheumatism, but a definite type of functional disturbance which influenced metabolic processes. To explain the power of cold to so disturb the nervous system as to induce inflammation in joints, fascia, muscles, etc., it was assumed that there existed in the individual an "arthritic diathesis" which was inherited.

5. Gradually as the knowledge of infectious conditions was increased and the resemblance of acute articular rheumatism and other acute forms of arthritis to certain well-known infective diseases as gonorrhœa and pyæmia was noted, the conviction grew that it must be an infection not materially different, whether as toxine or organism from what is present in these disorders. The inadequacy of the humoral, chemical, toxic and nervous theories to explain the incidence of acute articular rheumatism caused many investigators to compare it with other diseases. MacLagan (1881) advanced the miasmatic theory; that rheumatism was due to the entrance into the system from without of a miasm. closely allied to, but not distinct from that which was at that time assumed to cause malaria.

Heuter's (1871) infective germ theory considered that rheumatism was not an autogenous disease, but that a micrococcus entered the dilated orifices of the sweat glands and, reaching the blood, set up endocarditis and that capillary emboli produced the articular inflammation. Later the infective theory took a more definite form and rheumatism was ascribed to a specific bacillus, but influenced by the then accepted theory of the miasmatic nature of zymotic diseases, it was believed the growth of the micro-organism was favored by prolonged hot, dry seasons, and in some unknown way the micro-organism en-

tered the system of one who was predisposed by inheritance, chilling, exposure, fatigue. With the advance in bacteriological knowledge and technique many investigators have found micro-organism in the blood and tissue of rheumatic cases and many have described the micro-organisms found in cardiac valves or tissues and fluids of joints.

Pipoff (1887) isolated a micrococcus and with it produced in rabbits arthritis, pericarditis and endocarditis. Alchalme (1891) and later Thiroloix and Bittencourt isolated an anthrax-like bacillus, but the power of this bacillus to produce lesions of rheumatism were not confirmed by other observers.

Sahli (1892) obtained staphylococcus citreus from the serous membranes of a fatal case of rheumatism. Triboulet (1898) and Apert isolated a diplococcus from 11 cases of rheumatism, but failed to produce arthritis in animals, although it did cause pericarditis and endocarditis with valvular lesions and pleurisy, but no purulent inflammation.

Wassermann (1899) isolated from a case of rheumatism with endocarditis and chorea, a diplococcus, which had the power to produce polyarthritis which he regarded as rheumatic fever in a series of eighty rabbits and from the symptoms and autopsy findings, he considered it the specific micro-organism of the disease.

Poynton and Paine (1900-'01) isolated from 16 cases of a diplococcus, which injected into rabbits, developed after a few days polyarthritis, the joints being attacked in the migratory manner of acute articular rheumatism in man, fever, cardiac murmurs during life, and at autopsy there was found non-purulent inflammation of the joints, peri- and endocarditis, with parenchymatous changes in the kidneys, liver and spleen. The micro-organism could be recovered from the blood and was found in the cardiac valves and joint tissues.

Walker and Ryffel (1903) made a very important observation in a series of experiments; that the diplococcus that they had isolated and which produced polyarthritis in rabbits, when grown in an alkaline medium produced formic and acetic acid, while ordinary streptococci produced very little formic acid. Formic acid was also found in the tissues of the rabbits.

0.2 grams of formic acid has been found in the urine of rheumatic patients, while in health the total fatty acids (including formic) rarely exceeds 0.05 grams.

Beattie (1906) isolated from a rheumatic case a streptococcus which he considers identical with that of Poynton and Paine and Walker. The micro-organism isolated cannot be differentiated morphologically from streptococci that are found in the *mouth* and the *intestines*, but is more resistant than ordinary cocci as it lives in the test tube almost indefinitely, and he suggests that in

all probability it can live and lie dormant in the tissues of the individual as well. In relation to this probability and also as throwing some light on the relapses and recurrence of acute articular rheumatism, there is the following observation: One rabbit which had been injected in the right knee and which had apparently recovered, four months later was inoculated in the peritoneal cavity; the following day the right knee was swollen and tender, but in four days the acute symptoms had passed off, three days after recovery, reinoculated in the peritoneal cavity and caused recurrence in knee, after subsidence had occurred and seven days elapsed, again inoculated and again the knee presented all the symptoms of rheumatic arthritis.

By intravenous inoculation he was able to produce polyarthritis in 75 per cent. and cardiac lesion in 60 per cent. of rabbits.

From his experiments Beattie draws the following conclusions: that acute articular rheumatism is one of those bacterial diseases which in a majority of cases, at any rate in the adult, the bacteria are localized at certain areas; that at these local sites they multiply and from them distribute their toxins; that most of the clinical symptoms are due to the *toxins* and not to the bacteria themselves. Failure to find the micro-organism in the blood and fluid from the joints is due to the fact that the bacteria are in certain isolated areas only and may be missed, and that the joint and other serous membrane effusions may be due to toxins, as was mentioned above. Beattie suggests the probability that the micro-organism causing acute articular rheumatism may be a normal inhabitant of the mouth and intestine.

Fritz Meyer was able to isolate a diplococcus from tonsilitis of the clinical type which precedes or accompanies attacks of acute articular rheumatism. The mixed throat cultures were injected into a vein in the ear of a rabbit. If the inoculation caused arthritis, pure cultures were obtained from the joints. The diplococcus thus obtained (25 cases of tonsilitis) in every case produced polyarthritis in periods of six to eight days.

Numerous other investigators have confirmed the work of Wassermann, Poynton and Payne, Beattie and Shaw, and there is a general consensus of opinion that acute articular rheumatism is a microbic disease, but there is not the same agreement as to the micro-organism causing it.

Wassermann and his followers, which includes most of the English investigators, claim that acute articular rheumatism is a specific infective disease with specific micro-organism. Others, from the result of their experiments, conclude that it is an infectious disease not caused by any one organism, but is a "particular" reaction to various infections, an attenuated pyæmia due to infection from ordinary pyogenic streptococci



and staphylococci, while others go so far as to say that while granting its infective nature, its microbic cause has not been found.

Clinically, acute articular rheumatism gives the characteristics of an acute infectious disease. Its onset is sudden and associated with pyrexia. It runs a fairly definite course and is *true to type* not only in its symptoms, but also in the nature of the joint affection and the complications. Many believe that, from the clinical standpoint, the disease is as definite, distinctive and as certainly microbic as pneumonia, typhoid fever, or tuberculosis. So definite are the joint symptoms in their migratory, polyarthritic tendency, the quick return of the joint to normal after the subsidence of the inflammation without ankylosis or destructive changes, the absence of pus formation not only in the joint but also in the pericardium, pleura and peritoneum, that one must doubt the rheumatic nature of any joint affection which departs from this well recognized type.

Acute articular rheumatism is one of a group of infectious joint conditions and it is especially important that the other members be separated from it. Many of these are separated with extreme difficulty in the early stages. The differential diagnosis of *pyæmia* is difficult when it occurs without any obvious source of suppuration. It may be as migratory and polyarthritic as acute articular rheumatism. The skin is dry and lacks the peculiar sour smell and the perspiration of rheumatism; the joints are generally a deeper red, rigor and chills with sudden elevation of temperature are common, while uncommon in rheumatism. The pains of *influenza* may simulate very closely those of rheumatism. When the joints are chiefly affected, there is very little effusion, but in the subacute and prolonged type the ends of the bones are large and tender more like the early stage of arthritic deformans. Cardiac involvement may occur and while peri- and endocarditis may be present much more frequent is myocarditis with dilatation and the various cardiac neuroses and bradycardia and angular pain on exertion. The difficulty of diagnosis is still farther complicated by the fact that influenzal pains are relieved by salicylic acid.

*Pneumococcus* infection may involve the joints as well as other serous membranes, but associated with the joint symptoms there is generally present a more common condition of empyæma, anterior mediastinitis, which taken in connection with leucocytosis and the relation of pulse, temperature and respiration give a definite clinical picture of pneumococcus infection.

In *scarlet fever* the joint involvement may be of three types (1) a simple synovitis occurring during the first six days of the disease and lasting but a short time. This is the most common type; or (2) it may occur late in the disease as a septic involvement of some of the joints. The pains and inflammation is not migratory, there is

very little continuous sweating, and it involves the tendons in the back of the hand rather than the wrist joint itself. (3) In the stage of convalescence true rheumatic arthritis may occur, due probably to an intercurrent infection from the throat and tonsils; this is generally subacute.

After the injection of anti-diphtheritic toxin acute arthritis may occur, but its relation to the cause is so definite that there is very little difficulty in diagnosis. This anti-toxic arthritis gives added support to the hypothesis that the joints can be acutely affected by toxins without direct invasion of joint tissue by the microorganisms.

*Gonorrhæal* arthritis has as distinctive features, its monarticular type, its early involvement of peri-articular tissue, and the tendency to leave ankylosis or adhesions.

*The tubercular and nervous types of arthritis* have been fully considered by others in this symposium.

The infectious nature of acute articular rheumatism is supported by the occurrence of epidemics. Newsholme has called attention to the occurrence of epidemics at irregular periods of three, four, and six years, varying in intensity, the severe ones being followed by two or three mild outbreaks. The disease may also be endemic and the factors present in such localities were those which would favor the development of a microbic disease. Edleffson gives an interesting account of a house infection in Kiel where 728 cases occurred in 429 houses. Freidlander of Leipsig saw 12 cases from the same house in three years and in another period of three years, 18 cases from two houses. Considered by analogy the accepted etiological factors strengthen the infective theory.

*Heredity.*—The occurrence of rheumatism as a family disease can be explained in two ways: (1) as has been found in tuberculosis, that there is a low resistance to microbic infection or (2) that the members of the family infected have been living under the same conditions and have been exposed in a rather exceptional way to the infection.

*Age.*—Acute articular rheumatism is a disease of adolescence and early maturity, but the widely different manifestations that it presents in early childhood, adolescence and adult life is analogous to that seen in other infectious diseases occurring at these different periods of life.

Chilling and the influence of the seasons have been considered primary factors in the causation of the disease. The same factors were considered causal in pneumonia but a short time ago. Now the influence of exposure, overfatigue, alcoholic excess, etc., has been accurately placed in its relation to pneumococcus involvement and its relation to rheumatic involvement seems to be identical.

In the rheumatic type of arthritis, salicylic acid and its compounds exerts such a definite controlling influence that its action has been considered specific, and such specific effect can only be explained on the supposition that it acts upon a definite micro-organism or neutralizes its toxin.

The acceptance of the infective nature of acute articular rheumatism must have a very important bearing on the management and treatment of the disease. Just as the discovery of the tubercle bacillus gave us a clearer conception of the tubercular processes and removed many of the difficulties and doubts, so the acceptance of the microbic origin must modify our conception of the rheumatic processes and forces us to the opinion that rheumatism is a general disease with a special tendency to involve joints, serous membranes and produce cardiac disease, and that it is not a disease of the joints with symptomatic fever. The extreme importance of early diagnosis in tuberculosis is conceded and it is equally important that a correct and early diagnosis be made in acute rheumatic infection before it has caused irreparable damage to the heart.

It has been truly said that when the profession appreciates that the majority (75 per cent.) of the cases of heart disease occurring under thirty years of age are due to mutilation from rheumatism the importance of protecting the heart by an early diagnosis and careful systematic treatment would be recognized. One has only to visit the general hospitals and dispensaries to be impressed with the immense amount of suffering that follows rheumatic endocarditis and the economic loss in the earning capacity of the poor where this condition especially prevails.

Attention cannot be too often called to the fact that in children the rheumatic infection may not early manifest itself in joint symptoms, but may produce a condition of malaise with vague gastro-intestinal and other pains, progressive anæmia, nervousness, irregular and unexplained attacks of fever. Our attention of late has been so centered on tuberculosis as a cause of such a group of symptoms that not only in children, but even in adults we have ignored the fact that other infections may cause them, and it is only when manifest cardiac disease has developed that the possibility of their being caused by rheumatic infections has been considered. Early recognition and persistent and systematic treatment is as necessary in rheumatic infection as in tuberculosis, and it is the duty of the profession to realize their ability by such treatment to prevent later cardiac disease and to impress upon the public the necessity of such prolonged treatment and observation.

The experimental demonstration that the micro-organisms isolated from cases of acute articular rheumatism have the power in different media to produce lactic, formic and acetic acid,

and that the output of these acids in the urine is diminished by the use of salicylic acid, throws light on the control of the symptoms of the disease by salicylic acid and its compounds. It also emphasizes the clinical fact that when salicylic acid in efficient doses does not control the symptoms, in all probability the disease is not one of true rheumatism but an infection of a different nature producing joint manifestations, and that but little can be hoped from a continuance of the treatment.

The experiments of both Poynton and Beattie have shown the possibility of the bacteria remaining latent in the body for some time and under favorable circumstances causing the renewal of the symptoms. This coincides with what is seen in man and emphasizes the need of keeping the patient under observation after the subsidence of the acute joint symptoms and the possibility of later endocardial involvement.

The consideration of the chronic forms of arthritis classified under the term "rheumatism" presents even greater difficulties. Classification in this type of disease has run to extremes. There is not at the present time sufficient data for a generally accepted or satisfactory etiological or pathological classification, but for the purpose of treatment it is necessary to separate the different types of "rheumatisms." As the names given to these different types are apt to be misleading if taken in anything more than a descriptive sense, it should be constantly kept in mind that such a separation into the types is probably temporary only. The lack of a generally accepted classification on the one hand, and the multiplicity of hypothetical classifications on the other, with the same name applied to widely different pathological conditions has caused still further confusion. Some form of clinical differentiation is necessary for the proper treatment of the cases. There is great need for a more thorough examination and study in this class of cases. The physician is not doing his duty when he accepts the patient's own diagnosis of rheumatism and then gives his favorite prescription of salicylic acid or the iodides and warns the patient to avoid the red meats; or if the patient is financially able, directs him in a rather indefinite way to take a course of baths at some noted resort.

The following types of subacute and chronic arthritis are generally included among the "rheumatisms":

I. Subacute and chronic after an acute articular rheumatism. Following an attack of acute articular rheumatism the patient may subsequently suffer from painful affection of the joints which were primarily involved. The joint, although very painful and swollen, in the recurring attacks shows very little tendency to become deformed or chronically enlarged. Experimental and clinical data show that after acute

articular rheumatism there is produced a susceptibility of the joints to the toxins of that type of micro-organisms that primarily induced the disease, and subacute and chronic conditions may be due to the presence in the body of some nidus of infection which throws into the blood sufficient toxin to irritate the susceptible tissue. We have almost a complete analogy to this in tuberculosis where a nidus of infection in the body renders the patient more susceptible to the toxin of the tubercle bacillus, and whenever tuberculin is introduced we have not only constitutional symptoms but also a reaction in the affected area. When one studies carefully the histories of repeated attacks of rheumatism in the same individual, it is surprising how true to types these different attacks were and how the same kind of predisposing and exciting causes have been present in each attack.

In this type of subacute and chronic rheumatism, occurring in a patient who has had at some time an attack of acute articular rheumatism and which might be designated "the true rheumatic type," the diagnostic features are the migratory nature, the tendency of the joints involved in the first attack to be attacked in the later ones, for other serous membranes to suffer in a very characteristic manner. In this type, as was mentioned in acute, it is necessary to search for the point of infection, which may be in the naso-pharynx or the accessory sinuses, the respiratory tract (bronchiectasis), gastro-intestinal tract, chronic infection of the gall-bladder, genito-urinary tract (this is especially so in women). Even though no local focus of infection can be found, the case should still be considered as possibly of infective nature and treated on that basis. If the case has suffered from an attack of acute rheumatism, the diagnostic value of salicylic acid and its compounds is important, but if, while there is some relief from pain, there is no marked control of the disease, then other plans of treatment should be inaugurated so as to reach the probable source of infection. The fact that Meyer was able, from a mixed culture from the throat in certain cases, to induce definite arthritis in rabbits, supports the possibility of a small nidus of infection in the tonsils to give recurrent attacks. Numerous cases could be cited to prove the power of tonsillar infection to produce a chronic form of rheumatism. It is not appreciated that a low grade of infection in the accessory sinus may be an efficient cause.

Beattie in his experiments found that the micro-organisms that he isolated from a rheumatic patient could not be differentiated from those that were present normally in the mouth and alimentary tract. It is not as yet known whether a micro-organism that is a normal habitat in the body can become the cause of rheumatism nor the conditions which would produce such a change in virulence. It is necessary, however,

to suppose that such increase of virulence is possible, and in every case of acute articular rheumatism to pay especial attention to symptoms or abnormal conditions appearing in the mouth, naso-pharynx and alimentary canal. It is possible for micro-organisms to pass through certain epithelial structures without producing local disease. It is also possible for the toxins themselves to irritate the joint and produce the chronic symptoms of the infection.

Not every case of persistent joint pain that follows acute articular rheumatism is rheumatic in nature. One frequently sees cases that have gone from one clinic to another, giving a history of a previous attack of acute articular rheumatism and later a chronic painful condition of the feet. They will present numerous prescriptions for salicylic acid and its compounds. An examination of the feet shows that the condition is one of progressive flat foot due primarily to the weakening of the arch at the time of the rheumatic attack. Such sequelæ can occur in other portions of the body, and are largely due to resuming of work too soon and certain occupational strain or traumatism.

II. From this true chronic rheumatic arthritis can be separated a pseudo type *infective chronic arthritis*. This does not give the history of following an attack of acute articular rheumatism. Its onset is with fever and pain but not as acute as in the true form. It is poly-articular, but it involves with more definite regularity and symmetry the joints, and usually in the following order: the small joints of the fingers and toes (except the thumb), then the hand, elbow, knees, and has a preference for the jaw, sterno-clavicular and sterno-costal articulations which are but rarely attacked in true articular rheumatism. The shoulder and hip are almost exempt. As new joints are gradually involved, those first attacked remain more or less permanently affected, but all the joints that are to be affected are involved in a comparatively short time.

The course of the disease is variable. It may slowly advance by exacerbations attended by fever with a long period of quiescence between, or it may be progressive from the beginning, and extreme deformity be early present. The progress in some joints is more rapid than in others as if the infection was localized in them. In some cases exposure and occupational traumatism seem to be factors in causing greater rapidity. In addition to the persistent joint involvement and tendency to deformity the most distinctive symptoms are glandular enlargement, both local about the joint and often general, splenic enlargement, anæmia, slight, but *persistent elevation of temperature and high pulse rate, and during acute exacerbation some leucocytosis*.

The etiology of this form has many factors in

common with true chronic rheumatism, but it does not have the definite history of an acute attack, although it may begin rather acutely in the small joints. In young persons under fifteen years, it generally takes the form known as Still's disease. While no age or sex is exempt, it most commonly attacks women between the age of thirty and forty. It has all the characteristics of an infection, both in its clinical course and pathological changes. The morbid agent, either in the form of bacteria, some peculiarity of toxin, or the reaction of tissues in the patient, separates it from true rheumatism. In most cases it has been impossible to find the source of infection. If, after a long quiescence, an acute exacerbation occurs, a close study of the conditions that preceded or accompanied the exacerbation, will often give a clue to the type and source of the infection, which may be from the tonsils, naso-pharynx and accessory sinus, suppurative condition about the teeth, chronic glandular infection, interthoracic or interabdominal suppurative conditions, especially chronic ulcer of the intestine. In the female a nidus of infection following puerperal sepsis, chronic inflammatory condition of the uterus or adnexia. Some authors consider that long standing or acute fermentive process in the intestine may produce it. It is surprising what slight septic processes have been found to be responsible for the condition.

Its acute exacerbations often follow intercurrent toxæmia of a different nature as grippe and pneumonia. Very suggestive of the infective nature have been the reports of relief, and in a few cases permanent arrest, under the use of creosote preparations. Pathologically the destructive changes in the joint and the deformities resulting from them, separates it from true rheumatism, while these features causes it to be classed with arthritic deformans.

III. *True arthritis, deformans or atrophic arthritis.* This differs from the infective chronic arthritis just described not only in its pathological, but in its early clinical course. In the late stages the joint conditions of the two forms may be indistinguishable. In true arthritis deformans, from the very beginning the most characteristic pathological feature is atrophy of the joint membranes and the bones. In the early stage there may be some swelling of the joints from effusion, but there is not as marked spindle-shaped enlargement with œdema above and below the joint. In the true arthritis deformans, the same joints are attacked and there is the same symmetrical involvement as in the infectious type, and while there may be periods of quiescence, the joints once affected show very little tendency to become better, and the general course is one of progressive deformity and crippling.

In the infective type, the local symptoms are those of inflammation associated with fever. In the true arthritis deformans type it begins with

indistinct nervous sensations, drawing or tearing pains, tingling, feeling of cold, as if the circulation in the extremities was imperfect; diminished mobility worse in the morning and cold weather. Early and significant is muscular atrophy more marked than loss of function in the joints would explain.

The various types of deformity which once figured so prominently in the descriptions of the disease and which furnished a basis for classification is of little diagnostic significance. The true arthritis deformans is afebrile, the pulse is normal or slow, there is no enlargement of glands or spleen, the anæmia and constitutional disturbances slight, and due to disability rather than toxæmia. The etiology of this form is very obscure. It lacks all suggestion of toxæmia. Its occurrence after severe nervous shock, great physical and mental strain, grief, etc., would suggest some form of nutritive disturbance in the joints. Whether this is due to a change in the nervous mechanism or in general metabolism it is not possible to say. If due to metabolic changes it is not of the same nature as that involved in gout, for the two conditions have nothing in common. A very interesting hypothesis and one which has many facts to support it, is that the internal secretions, especially that of the thyroid, may be concerned in its production. Very suggestive is the fact that it generally attacks women about the time of the climateric when metabolic changes due to this period are most marked. There seems to be two types of this condition in women; one characterized by progressive obesity, ostosis of the ends of the phalanxes of the fingers and but little tendency to rapidly involve other joints. In this class persistent use of the iodides seems to have some controlling effect, which has been ascribed to its action on the thyroid gland. Beneficial results from a mild thyroid feeding have also been reported.

The other occurs earlier in life, the patient is spare and the condition more definitely polyarticular. In this form the diet should be liberal, meat should be a prominent ingredient, the appetite improved by stomachics and tonics. If cares or anxieties have been a factor, rest, change of scene and climate, open air life with exercise short of fatigue or injury to the joints, should be advised. The salicylates, alkalies, and all depleting measures should be avoided. The painful condition is sometimes relieved by the salicylates, but they should be used in small doses only.

IV. One of the commonest types of so-called rheumatism is chronic arthritis, which has no relation whatever to acute or chronic forms of true rheumatism, to arthritic deformans, or even gout and its uric acid allies. According to the pathological condition of the joint two forms have been described and as there seems to be

some etiological difference it is best at present to keep the two forms separate. *Chronic Arthritis, Villous Arthritis* or dry, creaking joint, is a common form. It is a local condition and not a general disease. The changes in the joint are characterized by villous growth in the joint membranes, the result of inflammatory process due to local causes. When the condition has persisted for a long time, secondary changes and deformity may occur. Crepitation and pain are due to the rubbing of the folds of the membrane over each other and not to lack of fluid in the joint. The condition is almost invariably limited to one or two of the large joints and is markedly chronic. It follows traumatism or irritation due to imperfect support of the joint by muscles and ligaments. The patient is able to use the joint to a varying extent, the muscle contraction limits motion and may even produce deformity. Exacerbation in the joint condition is generally due to overuse of the joint (traumatism). In obese persons of lax muscle tone the weight of the body may be the exciting cause, also all conditions that throw extra strain on a joint or change its relation to other joints in ordinary work or exercise, or even support of the body. Examples of such injury are chronic strain or slight sprain or twist of joints with continued use. (Pitcher's elbow, tennis elbow, sprains to the knee in skating and jumping, secondary strain to the knees in flat foot.) The condition is very chronic, medication is of little use, mechanical support and local applications are indicated.

The second form has been called *hypertrophic chronic arthritis* or osteo-arthritis on account of the exostoses and enchondroses that occur at the edges of the articular cartilages and attachments of the ligaments forming ridges or nodes when the disease has lasted for a long time. When the condition is limited to the spine it has been named spondylose rhizomilique and in the hip morbus coxæ sinalis. The thickening at the edges of the joints limits motion and creaking friction is heard and felt in the ends of the bones and have led some, on imperfect examination, to diagnose it as arthritis deformans. There is very little pain unless the use of the joint causes pressure on the sensitive tissue at the edges of the articular surfaces. When the thickening is so great as to press on nerve fibres, pain may be extreme.

The wear and tear of the joint in hard work (traumatic irritation) combined with exposure are the exciting causes in this form. It is distinctly an occupational arthritis. It is the chronic rheumatism of the masses. The first symptoms of the disease usually occur after thirty-five to forty years of age. One sees it most frequently in stationary engineers and firemen who are exposed to the extremes of heat and cold; in teamsters and coachmen, in whom it

involves the hands and elbows; farmers and laborers who are exposed to all kinds of weather; longshoremen and freight handlers (spinal form); overworked housewives (in the fingers and knees).

Some writers have considered that in addition to the traumatism and exposure there was some constitutional dyscrasia which was predisposing. It seems to me, rather, that the predisposing cause was some hereditary or acquired weakness of the tissues of the joints which rendered them unable to withstand the strain that was put upon them in daily life. The acceptance of the dyscrasia hypothesis has led to the over-active drug treatment of this condition.

It cannot be too strongly emphasized that this form of arthritis is primarily a local disease and in the large majority of cases is uncomplicated by any rheumatic infection. Still it must be admitted that acute conditions arise in the joints that cannot be explained by traumatism or undue exposure. Frequently these acute attacks seem to be due to the already irritated and more susceptible joints being acted on by the toxins of an acute general or local infection. If the toxæmia is prolonged there may be a secondary infective process in the joint which would change its character. An analogous condition is the occurrence of an acute attack of gout after influenza. I have caused an attack of gout in a gouty person by giving an immunizing dose of diphtheria antitoxin, and also increased the pain in a joint with traumatic synovitis.

*Treatment.*—If this condition is a local one due to traumatism and exposure, protection of the joint from further action of the primary cause is most important. This may demand a change of mode of life, change of occupation, or going to a warmer climate. During the acute stages absolute rest of the joint; in a word, it should be treated as a chronic sprain. Internal treatment is of little value in a curative sense. The salicylates do give relief during the acute stage due to intercurrent toxæmias. The alkalies and iodides are beneficial only when some associated condition is benefited by them.

The term "*muscular rheumatism*" as commonly used includes many painful disorders of the fibro-muscular structures. As our knowledge has advanced many of the painful conditions have been separated from this group and placed in their true relation to diseases of the osseous and nervous system, but even yet this group undoubtedly contains many widely diverse affections. Unfortunately, the term muscular rheumatism links in our minds all these affections so firmly with acute articular rheumatism, that advance in classification and recognition of the causes of the different forms of painful muscular affections has been hindered. Painful affection of the fibro-muscular tissues may be due to the same factors that induce true acute, sub-

acute and chronic articular rheumatism as mentioned in the earlier portion of the paper. In this type the articular symptoms may be present, but in a less degree than in the fibro-muscular structures, and the relations are so definite as to make diagnosis relatively easy. At times the muscle itself may be so affected as to give us all the symptoms of myositis. The muscle and fibrous pains, just as the articular symptoms, may be due entirely to absorption of toxins from a focus of infection somewhere in the body. The painful conditions of the fibro-muscular structures in influenza are so well known as to be only mentioned. The infectious agent of pyæmia, pneumonia, gonorrhœa and tuberculosis may also induce fibro-muscular painful conditions. All these forms can be classified as infectious, and there is constitutional disturbance of greater or less degree—*i. e.*, fever, increased pulse rate, sweating, and leucocytosis.

Another form of "muscular rheumatism," the *metabolic*, has been considered as an irregular gout. In this form the onset of the attack is associated with scanty and concentrated urine, abundance of urates and some increase in uric acid crystals; with increase in the urine and disappearance of the urates, the symptoms disappear. These attacks are generally non-febrile or at most there is only a slight rise in the temperature. While the subjects of true gout suffer from analogous attacks of pain in fibro-muscular tissue, there are not sufficient facts to warrant classifying all cases with this group of symptoms as gouty. The majority of these cases are due to the combined action of the two factors—*i. e.*, over-fatigue, straining of fibro-muscular tissue and exposure to wet and cold. The attacks are more easily induced if the patient is at the time suffering from "metabolic toxæmia" due to imperfect digestion or over-feeding.

Gowers has given the name of "fibrositis" to this condition, and considers that the pain on motion is due to traction and pressure on the nerve endings in the muscle spindles and fibrous structures which are the only sensitive structures in these tissues. He has also called attention to the tendency of the process to extend to the fibrous tissue of the nerve trunks. An important point in the differentiation of this condition from that of neuralgia is that in neuralgia the pain is spontaneous while in this condition the pain is induced by the tension of muscle contraction. This tension may occur when the part is voluntarily moved, or when muscle contraction is called into play to support the different parts of the body. Spasm of the muscles is a prominent feature. The nature of the change in the fibro-muscular tissue is a matter of dispute. The inflammatory nature has been denied because there is no tendency to form inflammatory products. On the other hand, advocates of the inflammatory theory cite the tendency of the process to extend

to other fibrous structures, as the sheaths of the nerves, as proof. This form of "fibrositis" is more common in the later years of life, while the true rheumatic and other forms of infectious fibrositis occur especially in early life.

Salicylic acid does very little good in this form. It is best treated by rest of the affected part and especial avoidance of those movements that induce pain, counter-irritation, local and general diaphoresis, baths, free elimination by kidney and bowels.

Closely allied in symptoms is the form that in a general way can be called "traumatic." It is very analogous to the cramps, stiffness, soreness or aching that occurs in healthy persons after unusual or extreme exercise and which passes off in a few days if the exercise is continued or in an even shorter time if it is stopped.

In the weak or sickly, an apparent slight exertion or even the physiological action of muscles may go to the point of traumatism and induce one of the painful affections which may be called "muscular rheumatism," "spinal irritation," "neuralgia," or "reflexed pain from diseased internal organs." The painful affection is most liable to occur in those muscles that have to hold the body erect and where one group is the opponent of another, or where habitual posture, or certain occupation throws a strain on the muscles or their attachments. The pain occurs more frequently in muscles of the trunk than those of the extremity; in the abdominal wall than the thorax; in the legs than the arms; in the tendinous portion than the fleshy parts of the muscles.

The most common seats of these types of painful affections commonly regarded as rheumatism and yet due to "traumatic" conditions are the pain in the spine and nape of the neck and occiput that occurs after acute or debilitating illness and long rest in bed. On beginning to sit up if the arms and head are not supported a gradually increasing pain occurs in those muscles which have become fatigued in supporting the body. Many cases of "typhoid spine" are of this nature. The backache and neckache occurring in women after confinement who attempt to sit up before they are sufficiently strong and especially where they assume a constrained position in nursing the infant, is due to this kind of strain. The sacroiliac pain that occurs in women who get out of bed too soon after confinement and stand a great deal before the sacroiliac ligaments have returned to the normal, is due to the weight of the body causing the sacral wedge to separate the iliac bones. If long continued, or the sacral ligaments are permanently overstretched, this may cause such widespread pain in the sacral plexus as to render the diagnosis of sciatica the most plausible one. Support by proper belt about the pelvic bones relieves this pain as readily as support to the instep in "inflammatory flat foot."

Many persons complain of abdominal pain,

especially just above the pubes, and consider the condition rheumatic in nature or due to diseases of the bladder, or in women, of the uterus or adnexia. The fatigue or strain causing this pain may be due to sitting for a long time in an uncomfortable chair. If the tension is put on the back muscles, pain from the same cause occurs at their insertion in the pelvic bones. In women, the left inframammary region is the frequent seat of fibro-muscular pains. The fibro-muscular pains occur when the tissues have been overtaxed by unusual, excessive, or too long-continued exertion, or have been weakened by long inactivity, or the patient weakened by exhaustive disease, loss of rest, food, etc.

Over-exertion is a comparative term for the individual and for the same individual at different times and under different conditions. The pain in this form is generally described as a grinding, aching, boring, and also as weakness. Patients in locating the seat of pain rub the part with rather firm pressure and generally in the direction of the fibres of the muscles affected. When closely questioned, a history of relief after days when the part is not exercised or in the morning, is very suggestive. When the pain is due to occupational strain there is the story of daily increase until, near the end of the week, it is almost unendurable, and better on Monday after Sunday's rest.

The "traumatic" type should be treated by rest, support, and, if necessary, orthopedic apparatus. The general condition of the patient should be improved and there is but little need of the rheumatic remedies. The pain is due to a local cause and not to a constitutional condition.

It is not within the scope of this paper to take up the differential diagnosis or to consider gout and gouty manifestations.

### OSTEITIS DEFORMANS (PAGET'S DISEASE) INCLUDING A REPORT OF TWO CASES.\*

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OUR present knowledge of the pathogenesis of excessive and purposeless deposits of bone is purely theoretical. It leads us to a strong suspicion, however, that in these anomalies with many family resemblances we will ultimately find a single underlying cause modified by varying conditions responsible for existing differences, including the changes in the bone of a rarefying nature, and at the same time marked evidences of overgrowth, a combination which is now considered characteristic of osteitis deformans.

Abnormal development of bone such as

hyperostosis, leontiasis, gigantism, osteitis deformans, Marie's hypertrophic pulmonary osteoarthropathies, some of which are for a long time unaccompanied by constitutional, focal or sensory symptoms, have for ages interested the profession and lay world; have been pictured and considered among the curiosities of medicine.

Virchow in his *Krankhaften Geschwulste*—that storehouse of valuable data which he gave to the profession during the years of his greatest activity—gives us a clear conception of many of these pathologic conditions. Malpighi in 1697, in his *Opera Posthuma*, called attention to hyperostoses and overgrowths of the bones of the skull and allied states. Jadelot in 1799 presented a communication on this same subject. One of the most extraordinary cases of multiple exostoses was reported in 1734 by Forcade, in which the history of his own son was fully given. In this case multiple exostoses followed upon a lachrymal abscess when the boy was twelve years of age, after which the bones of the face and skull became enormously large; the growth of exostoses in distant parts of the skeleton followed each other slowly. As the boy grew to manhood the facial muscles underwent fibroid change and were amalgamated with the bones of the face.

This case was in all probability one of either acromegaly or multiple non-malignant hyperostosis and not osteitis deformans, because of the invasion of the small bones of the face and the changes in the soft parts, the muscles more particularly. The patient lived to be 45 years of age, and at death his macerated skull weighed eight and one-quarter pounds.

Medical literature holds the records of a number of interesting cases which Virchow has variously classified under the head of leontiasis, partial hyperostosis, including those reported by Jey in 1821, Otto in 1824, Bojanus in 1828, Vrolik in 1848, Albers in 1851 and Huschka in 1858. The exact diagnosis of these and many others which are scattered in monographs and clinical reports must always remain uncertain, but they were examples of purposeless enlargement of bone, associated with what we to-day recognize as either hyperostosis, acromegaly, leontiasis or osteitis deformans.

Bone changes corresponding exactly with the classic description of the disease which we now recognize as osteitis deformans, or Paget's disease, are so exceedingly rare that I hope it will be agreeable to the society to receive the histories of two cases, with a few statements bearing on the general consideration of the subject.

Our first systematic rehearsal of the symptoms and pathology of osteitis deformans was

\* Read at the Annual Meeting of the Medical Society of the State of New York, at Albany, January 25, 1910.

furnished by the late Sir James Paget in 1876, in an article which he read before the Medical and Chirurgical Society of London reporting five cases. Czerny, three years before (1873) introduced the term osteitis deformans in describing a case of curving of the legs. Paget characterized the disease in his original paper as follows:

"The disease affects most frequently the long bones of the lower extremities and the skull, and is usually symmetrical; the bones enlarge, soften, and those bearing weight yield, become unnaturally curved and misshapen. The spine, whether by yielding to the weight of the overgrown skull or by change in its structure, may sink and seem to shorten, with gradual increased dorsal and lumbar curves, the pelvis may become wide, the necks of the femora may become nearly horizontal, but the limbs, however misshapen, remain strong and fit to support the trunk."

The disease as a rule, as Paget originally held, begins in middle life or later in the majority of cases. It is exceedingly slow in its progress, continues for many years without in any way affecting the general health. The troubles to which it gives rise are due to the changes of shape, weight, size and direction of the diseased bones as will be shown in the first case which I am to report.

The skull, usually its cap, may be enormously thickened and the bones exceedingly altered in structure without producing focal symptoms dependent upon pressure or causing mental alienation.

The clinical picture has not been materially changed by recent reports, though the possibility of irregularity in the deposits of bone and the occasional asymmetry of the disease have been fully established by well authenticated diagnoses. Fortunately, however, our pathologic knowledge has been materially increased, though there are still moot questions to be settled as experience grows.

CASE I.—Mrs. D. C. H., living in Altmar, N. Y., was seen in consultation with Dr. More on the 12th of April, 1907. This woman is 62 years of age; assisted in her household duties until within the past few years, had formerly been a teacher, intelligent and refined. She had never been worried; was of a happy disposition, good habits; had three children, all living. She passed the menopause at fifty, no history of lues, no marks suggesting its presence. Has never had rheumatism. Her mother died at 84. Careful inquiry into the family history gave no clue to the presence of hereditary taint or disease which in any way resembles that from which the patient is now suffering. Had always enjoyed fair health; at fourteen had scarlet fever; always had more or less troublesome errors of refraction and accom-

modation, had always worn glasses and was exceedingly near-sighted. She had always been short; never taller than five feet four inches; had grown shorter during the past two or three years. When she was about six years of age she fell from a wagon, striking the ground with considerable force on the right side of her head. Her mother told her that a small swelling developed, covering the right parietal bone, which disappeared without incident, suffering, or symptoms of any kind. The physician who saw her spoke of the swelling as a "small hematoma."

When fifty-five, she noticed that the right half of her head was a little larger than the left; her hats no longer fitted, and she became very much frightened because of this "bunchy feeling" as she expressed it, and consulted a physician, who assured her that it was not a cancer as she had supposed, but simply a periosteal thickening. During a number of years preceding this enlargement she was conscious of a "crawling sensation" over the right half of her face, it was also noticed that she had a convulsive tic of the muscles of the left half of her face.

In spite of the assurance of her physician that there was no cancer, the growth worried her greatly. Her general condition grew less favorable and she failed in strength, and during the past three or four years has been unable to walk as she formerly did because she had "no strength in her legs." She can walk if she supports herself, and "wabbles." The vision in her right eye is not as good as in her left; there are no organic changes, evidences of optic neuritis or any detectable lesion in the fundus. The convulsive tic keeps her left eyelids busy much of the time, is beyond her control. This, however, antedated the enlargement of her head. Her eyes are sensitive to light, she keeps them covered as much as possible. There is no diplopia. Hearing is not normal but only slightly defective in both ears. She speaks without impediment, swallows well, her mental condition is perfect. Her deformity has made her exceedingly nervous. She has no headache, her appetite is good, digestion normal, bowels regular, sleeps well, urine is free and normal. Has had but little dyspnoea, occasional pain in the precordial region. All of the subjective symptoms are materially increased by worry, excitement of the thought of the possibility of an increase of the existing head deformity.

The right half of the calvarium is evenly enlarged beginning above the right zygoma, including the frontal, parietal, temporal and occipital bones, the enlargement extending exactly to the median line, at no point overlapping. The left half of the calvarium and left face as well as the lower part of the right half of the face are normal. Hence this woman presents the appearance of one whose head



"has been stove in," the left half flat while the right half is prominent, forming a protuberance at once striking and characteristic. Sensation over both halves of the face and scalp is normal. The circumference of the right half of the cranial vault measures fourteen inches, the left half eleven. Her gait is peculiar, it is wabbling and uncertain.

There is a decided dorso-cervical kyphosis, with marked deformity; the thorax is somewhat narrow above, spreads at its base; abdomen is triangular shaped, broad and short, with the characteristic deep sulcus crossing, described by Paget; there is also the relative increase in the width of the hips and the bowing of a changed femur.

Until we examined her no one had ever suspected changes in other parts of the body than the head. Neither the patient nor her husband had noticed any abnormality in any of the other bones of her body. We found the left clavicle three times as thick as the right; it rests over the top of the thorax like a policeman's club and is two inches longer than the right, which is normal in thickness and rather small. The enlargement of the left clavicle like that of the right half of the calvarium, is smooth, nowhere can we detect the slightest unevenness or tenderness.

The spinal curve shows considerable concavity anteriorly. The spine has evidently yielded to the weight of the head, causing change in height. The right ileum is enormously and evenly enlarged, from three to four times as thick as the left, which is normal. The greater enlargement of the ileum is posteriorly, appearing like a huge mass, as large as an orange, also smooth and eburnated. The right femur is much curved, like one-half of a yoke, its shaft is enormously enlarged, the thigh measures nineteen inches in circumference in its middle third, while the left at the corresponding level measures fifteen. The enlargement is limited entirely to the shaft of the bone. There are no joint changes. These enlargements are all even; the deposit is uniformly distributed, hard and eburnated. There is no tenderness anywhere about the bones. The muscular development is medium. The atrophy is that of disuse. There are no paralyses. The reflexes of the body, including those of the eye, are normal. There are distinct mitral systolic and aortic systolic murmurs; the size of the heart is not materially changed. Blood pressure is 145 mm. Hg., pulse 80, arteries are generally sclerosed, temperature and respiration are normal.

There are no symptoms referable to the nose, fauces, tongue, mouth, teeth or skin. Patient has not been weighed in years, probably her present weight does not exceed 110 to 120 pounds. There are no glandular enlargements. The blood picture is normal; exertion causes

more or less fatigue of late, aggravating the slight dyspnoea already mentioned.

The leading features of the case are: *Asymmetrical hyperostoses affecting the right half of the cranial vault, the left clavicle, the right ilium and the left femur, with secondary changes in the spinal column, arteriosclerosis, aortic (vascular) obstruction and mitral insufficiency.* The diagnosis of osteitis deformans, or Paget's disease, was promptly made. Unfortunately, no amount of persuasion will lead this woman from her rural home, where she is living in seclusion, to yield to our importunities that X-ray pictures of the changed bones may be presented with this report.

The case, however, is classic, and answers in every particular the requirements included in the original definition of the disease.

CASE 2.—Miss Ethel M. of Cortland, N. Y., seen October 10, 1909, in consultation with Drs. Neary and Higgins; a high school student, seventeen years of age, of good habits, without hereditary or specific taint, with excellent family history. Patient had the usual diseases of childhood except scarlet fever. Ten years ago she sustained a fracture of the left hip supposed to have been located one-half inch below the head of the bone; two years ago she was supposed to have had rheumatism. At this time it was found that she had enlarged tonsils and adenoids; all were promptly removed. Five years ago it was noticed that both cheeks in front and under the ear appeared abnormally large. When this condition was first noticed it was supposed that she was suffering from mumps. This supposed swelling of the parotids did not disappear but increased so that both sides of her face appeared continually full and swollen. Three years ago she consulted a physician who found her perfectly well but said she had an abnormal "setting back," as he expressed it, of her jaws. During the past three years both rami of the lower jaw have slowly increased in size until the face presents a peculiar appearance. The jaw is broadened; the rami are abnormally prominent, standing out in bold relief and seem to have grown backward and outward. At times the young lady complains of a snapping of the jaws, occasional pain, with at the same time more or less pain in her knees, back and in the shoulder blades.

In February, 1909, she felt unusually weak, seemed exhausted and did not get about as well as before. Thorough examination of the other bones of the face and the remnant of the jaw fail to show any abnormality. There is no change in the size of the nose, the eyes are normally placed, are not unusually prominent; there are no changes in the soft parts of the face; the tongue and lips are normal in size; there is no functional disturbance of the tongue, neither is there change in the reaction of

the muscles of the face though the messeters seem to be tightly drawn over the rami.

An examination of the calvarium shows the left parietal bone very much thickened, evenly enlarged, not tender; as the hair is brushed aside the bone lifts itself above the surrounding bones of the skull. There is no tenderness of the skull. The right clavicle at its articulation with the sternum is abnormally broadened, thickened, lifting itself above the normal level; its longitudinal measure at the sternoclavicular articulation is two inches, while the left clavicle measures one inch at a corresponding point. The right arm is longer than the left; the bone development is greater; the enlargement of the bones is even, the muscular development is about the same as that found in the left upper extremity. Measurements taken from the tip of the acromion to the end of the middle finger thirty and one-half inches, the same on the left side, twenty-nine inches. The right wrist is slightly larger than the left. Sensation, all reactions and movements are normal in both arms; the right ilium is uniformly enlarged, presenting a marked protuberance posteriorly. The head of the right femur is larger than the left; the right foot in its bony parts is materially larger than its mate, and her right shoe is always too small and uncomfortable. The spine is straight, without curve, and appears normal. The right leg is slightly longer than the left, a condition which may be due to the fracture of the latter. The eye reflexes are normal; error of refraction has been corrected by glasses. Has had earache, is slightly deaf in both ears; there is no discharge from either ear and no abnormality of the drum membrane. Her best weight was 120 pounds, her present weight is the same. Her pulse is 80, respiration 18, temperature  $98\frac{1}{2}$ . Blood pressure 110 mm. Hg. There are no evidences of glandular enlargement. Blood examination made by Dr. Higgins shows: hemoglobin 95 per cent, red blood corpuscles 4,700,000; no leucocytosis, normal appearance of blood smears.

Patient occasionally has a slight cough, some dyspnoea on exertion, which is accompanied with pain over the heart region, and slight palpitation. The heart sounds are muffled; there is no distinct murmur, its size is normal; there are no evidences of arteriosclerosis. There are no symptoms referable to the abdominal organs except the palpable enlargement of the ileum. There are no symptoms referable to the nervous system. The patient sleeps well; all reflexes are normal, both deep and superficial. There are no urinary symptoms. Urine is normal in all respects. First menstruated when about thirteen years of age; has continued regular, the menstrual flow is normal, continuing five days; she suffers from dysmenorrhea during the first twenty-four hours of menstruation.

The patient was referred to Dr. Coon for X-ray examination. He made in all seventeen exposures of different areas from her head to her ankles. He reports as follows:

"The most striking changes are found in the angles of the jaws, these are prolonged outward and backward, and the bone is very dense and hard. The tip of the angle projects directly outward nearly a quarter of an inch, and this, no doubt, accounts for the fullness of her face in this region. The "wisdom teeth" are not yet erupted, the lower ones are nearly ready to show themselves, while the two upper ones are well up in the jaw, their position is good. The left side of the skull in parietal region is thickened, both plates seem dense and thickened and there is also more cancellous tissue than on the opposite side. The sternal end of the right clavicle is large, and at the same time apparently decalcified. Quite marked changes occur in and about the shoulders, the heads of both show areas of decalcification, more particularly in the left; there are dense bony prolongations of the margins of the glenoid fossæ, described as "lipping." The ends of clavicle and acromion show points of bone not usually found except in muscular subjects. The hips also present marked changes; the acetabulum being rough and uneven, especially the right, the lipping of the articular margins is very pronounced, the articular head of the femur is also rough and flattened. Right ilium large and areas of decalcification; the obturator foramina are large. The old fracture of the left hip was sub-trochanteric, shaft of femur in this region large and dense. Knees show slight irregularities on the articular surfaces of the femur and also above the epiphyses on the posterior surfaces; the lower end of the thigh bones seem a little less dense than normal, but no particular areas of decalcification, slight lipping of edges of patella and upper end of tibia. The right wrist is broader and less flexible than the left, the epiphyseal lines are somewhat irregular. Not much change in the ankles on lateral exposure."

Dr. Coon's X-ray pictures confirm the diagnosis of osteitis deformans.

The leading features of this case are: *The marked changes in the rami of the lower jaw, the decided thickening of the left parietal bone, the enormous enlargement of the sternal end of the right clavicle, the surprisingly large right ilium, the enlargement of the right humerus and forearm, the increase in the length of the arms and the increase in the size of the right foot, with the characteristic decalcification and abnormal bone growth pathognomonic of Paget's disease.* The age of the patient, only seventeen, is unusual. All of the changed conditions followed the fracture of the left hip five years before. The areas of decalcification shown by Dr. Coon, with the associated hypertrophy of

the bone, the separate thickenings, the absence of invasion of the soft parts, with the progressive changes in the skeleton leave no room for doubting the diagnosis.

This case is still in its incipiency. We may expect to find, as time advances, greater asymmetrical enlargements than we have at present, and there may be an approach to symmetrical changes in some bones. In the first case reported the changes during many years were limited to the right parietal bone.

Osteitis deformans is an exceedingly rare pathologic entity. The two cases included in this report are all that the writer has seen. Paget's original paper included the report of five cases; before his death he had gathered notes of twenty-three cases. Of 20,000 medical patients examined at Johns Hopkins Hospital, but two cases of this disease were found. Packard and Steele in 1901 collected the records of ninety-nine cases of supposed osteitis deformans. These writers claim that twenty-nine of these may have been instances of the disease, but the facts given were not sufficient to warrant the diagnosis. They finally concluded that sixty-six cases of the ninety-nine might with safety be considered as true examples of the disease. To this number they added their own case, making a total of sixty-seven. Forty-one of these were males, twenty-four females, and in two cases the sex was not stated. The youngest patient was thirty-nine years of age, the oldest eighty-two; the average age was sixty-one. The average age at the beginning of the disease was forty-nine and one-half years. In one case the disease first showed itself between the seventy-ninth and eightieth year. Eleven of Packard and Steele's cases began before the age of forty,—one of Paget's cases at twenty-eight, and lived to be fifty-eight. Moizard and Bourges report one case aged twenty; Blanc reports one case beginning at seventeen. My case is the youngest found in our search, she was twelve years old when the rami first enlarged—is now seventeen.

Among the sixty-six cases reported there are fifty-seven in whom the bones of the head were involved; in nine there was no involvement of these bones. Both tibiae were enlarged in forty-seven cases, the right alone in two cases, the left alone in one case. In forty, both femora were involved, the right alone in three, the left alone in one case. The spine was involved in thirty-one of the cases; in twenty-four cases the clavicles were invaded, the right alone in three, the left alone in four cases. The pelvic bones were invaded in twenty-one cases.

Most writers agree that in the majority of these bone changes the superficial feel is that of eburnation. Clopton, in 1906, in a very interesting article on this subject included seventy-five cases among the literature. McPhedren, in

1885, reported the first case in this country; Gibney, 1890, Mackenzie, 1891, Taylor, 1892, Hewisch, 1896, Watson, 1898, Eltinge, 1901, Prinz, 1902, Fitz, 1902, added to the literature on this subject by reporting individual cases, and in some of these instances considered its pathology and symptomatology.

Assuming that the figures given by Clopton in 1906 are correct, I have searched medical literature since that date and find that at the present time, including the two cases herewith reported, we have records of at least one hundred cases.

From the recorded cases authors are agreed that the following is the order of the frequency of involvement of the bones of the body—the skull, tibia, femora, spine, pelvis, ribs, radii and ulna.

The case of Morton Prince (*American Journal of Medical Sciences*, vol. 2, 1902, page 797) is one of a woman aged forty-four, in which the cranium and the ramus of the right jaw were also enlarged as in my case. Cases in which the jaw is changed are very rare. In Prince's case, besides the involvement of the cranium, irregular and "most obtrusive in the left parietal bone" and the thickening of the right ramus of the jaw, the spine is flexed and there is a marked kyphosis in the upper dorsal region. The sternum and the ribs are thickened, both clavicles are enlarged, the radii are both changed, both femora are curved, also the tibia. The bones on the right side of the body are most changed—as in the second case reported by me. This case is still further exceptional because she developed delusions and other mental symptoms requiring her removal to a hospital for the insane.

The loss of height indicated by the low position of the hands when the arms are hanging down is characteristic of the advanced cases of osteitis deformans when the skull is involved, and by its abnormal weight causes the spinal column to yield. In this class of cases the head is held far forward, the chin is raised, "the shoulders are rounded, the chest is sunken toward the pelvis, the abdomen is pendulous; the curved lower limbs held apart and usually with one advanced in front of the other and both knees slightly bent; the ankles overhung by the legs and the toes turned out." (Waterhouse).

Prince, in his article makes the following statement in connection with the involvement of one bone:

"As to the non-involvement of the long bones, Bowlby and Edmunds have each reported a case claiming to be osteitis deformans, in which only one bone was affected, and Hutchinson, a case in which only two long bones were affected. In Bowlby's case the histological examination showed changes resembling those

described by Paget so that if the disease may be limited to one bone it is logically possible that it may be limited to the cranium, which is so often and early affected."

Fitz has made the positive statement that, "multiplicity of the bones affected is the constant characteristic."

There has been considerable difference of opinion among those who have studied this disease with regard to the justification of the diagnosis of Paget's disease in cases with involvement of but one bone. It must not be forgotten, however, that changes may remain limited for years to a single bone and that in these same cases many bones may ultimately suffer.

Cases of hyperostosis cranii uncomplicated, are considered by many pathologists and clinicians to be examples of Paget's disease and a study of the literature on this subject shows that these often, comparatively speaking, develop the bone picture of osteitis deformans.

Dr. Edes (*Amer. Jour. Med. Sciences*, July, 1896) reported a case as hyperostosis cranii in 1896, which was found in 1902 to have "almost all, if not all, of the long bones of the body affected," with kyphosis (dorsal) and sternal deformity.

In Case 1 it may be assumed with considerable certainty that the asymmetrical hyperostosis cranii preceded by many years the changes in the other bones now present.

Paget, in his original paper called attention to the relative frequency of *malignant growths* following these hyperostoses. Packard and Steele, in their splendid article in the sixty-seven cases reported, found five with sarcoma, in two there were non-malignant growths; in three cancer was present. Therefore a total of 4.5 per cent. with cancer complicating, and 7.5 per cent. with sarcoma. Paget's original case, the first described in his paper, developed as he expressed it "a firm medullary or osteoid cancerous growth which formed around the radius."

The cases may be divided into two groups; one painful and the other painless. The histories show that in the majority of cases there is more or less pain, rarely severe. Some have lived during many years without pain and have only been inconvenienced by the extra weight which they carried and the resulting deformity.

In a number of cases reported, the earliest symptom of the disease was the persistent pain in one or both tibiae. In some cases the pains have been of a shooting character, resembling the lightning pains of tabes, rarely so severe, however, and are not associated with changed reflexes, and are never nocturnal.

Case 2 has suffered considerably from what were supposed to be "rheumatic" and vague pains in the lower jaw.

The history of traumatism in both of the cases reported seems to me to be an interesting feature. In Case 1 the prime changes were found in the bone, which was injured when the patient was six years of age. In Case 2 the enlargements of the bones are distant from the seat of the fracture sustained five years before bone changes commenced.

In the absence of positive knowledge with regard to the etiology of the condition which we are considering, I have wondered whether when Nature was called upon to provide new bone or repair injured bone the habit of bone formation may not have been stimulated and finally formed. Whether in these cases with a positive history of traumatism that factor ought not to be considered provocative.

There is a growing feeling among those who have observed these cases that the majority suffer from some vascular change. Arteriosclerosis has been a frequent accompaniment; valvular lesions were present in many of the reported cases. Paget's first case suffered from mitral disease. Case 1, reported by me, has arteriosclerosis and aortic valvular obstruction, with marked mitral insufficiency. Case 2 also has an unstable circulation, muffled heart sounds, but no evidence of the arteriosclerosis.

The *facial resemblances* of patients in whom the bones of the skull, particularly the calvarium, have been changed are striking. While I regret exceedingly my inability to present with Case 1 either a photograph of the patient or X-ray pictures, I am positive that it would be exceedingly difficult to differentiate the photographs of the various women presented by previous writers, who have suffered from asymmetrical hyperostoses from that which I might have presented had my patient been photographed. Just as all acromegalic and mixoedematous patients grow to look alike as these diseases advance, so do these patients with skull changes grow to resemble each other.

Most authorities have found that patients, particularly women, suffering from this disease, finally withdraw entirely from society, live in seclusion and resort to all possible means of covering their deformities and oppose medical examination fearing publicity.

Headache with vertigo and ocular disturbance are among the leading subjective symptoms of these cases. The hearing in both of my cases was affected. This defect is mentioned by others. In the majority of cases locomotion becomes difficult. Kutschka expresses this very forcibly when he says "Die Beine wollen nicht recht."

The presence of spasmodic facial tic, I dare say is quite unusual. In the first case reported it antedated, so far as we know, progressive bone change. Kutschka, however, reports a

case with parallel symptoms in which, as in my case, there was defective hearing, spasmodic and asymmetrical changes in the several bones.

It has been noted that in some cases asymmetry finally yields to symmetry. The disease may begin in one femur, asymmetrical changes follow in distant parts of the body, finally there is extension to the other femur with the characteristic formation of the yoke. The same experiences are noted with involvement of the tibia.

Skull changes are usually early if present at all. These may remain unnoticed during many years. The frequent necessity for change in the size of the hat may first call attention to the abnormality.

In some of the cases the hair is thin; alopecia develops over the changed bones, giving the patient a grotesque appearance.

It would be interesting and profitable to be able to explain the reason of the *one-sided* hyperostoses and such asymmetry as we find in both of the cases reported. The invasion of the skull cap, in the first case, to the median line and not a fraction of an inch beyond, was most interesting.

In occasional cases diaphragmatic breathing due to the fixation of the thorax and deformity has been associated with bronchitis and emphysema. In a number of cases the length of the arms, particularly in subjects whose height has been reduced by secondary spinal change, is striking. The arms are so long that they may reach to the knees, like those of apes.

In spite of the enormous thickening of the bones of the skull in the cases reported, there have been no symptoms of *cerebral compression*, save in two well authenticated cases, as is frequent with other hypertrophies of bone of a specific or malignant nature.

Clinicians have been interested in studying the conditions of the background of the *eye* in these cases. Vergne collected thirty-eight cases; in thirty of these there were no eye symptoms. Among the cases in which eye symptoms were present three presented with asthenopia; in one case the crystallin lens was found opaque, the fundus normal. In one there was retinitis hemorrhagica, in one choroiditis with plaque deposits and in one a lesion of the cornea. Three cases were complicated with interstitial keratitis and two are reported to have been associated with retinò choroiditis.

Paget makes the following statement in considering his twenty-three cases. "*It may be only by chance coincidence, but it seems worth mentioning that in twenty-three cases, four after long continuance of osteitis became blind,—one with choroiditis three with retinal hemorrhage.*"

Paget's experience therefore confirms the statement before made that the pressure of the overgrowth of the bone is not a prime cause of these ocular changes. It is more probable that existing vascular disturbances are at the bottom of ocular changes.

So far as I can find from the search of medical literature no uncomplicated case of Paget's disease has given the *Wassermann reaction*. Kutscha, who has had the largest experience in connection with this subject, makes that positive statement.

A number of years ago it was held by some that the bone changes in osteitis deformans were of *luetie* origin. This statement has been successfully controverted by the results of specific treatment, not a single case has been improved or yielded in any degree to the long continued administration of the iodides or mercury.

There are no characteristic conditions of the urine or feces.

In the diagnosis of the disease we may occasionally be puzzled to determine whether a case with but one bone causing a deformity is a local affair or a true Paget's. Packard and Steele say, "In some of the cases in literature this question cannot be decided. The simultaneous involvement of more than one bone, particularly if the two bones be far removed from each other, and therefore not affected by a possible local cause, should make us suspicious of osteitis deformans, providing no manifest cause, such as syphilis or malignant growth, could be assigned."

X-ray pictures as in one of the cases reported, showing the characteristic changes in the bone structure are of the greatest assistance in clearing the horizon.

Lancereaux and Richard have attempted to prove that arthritis deformans and osteitis deformans were varying manifestations of the same disease. They attribute both to trophic disturbances; that in the former the joints are invaded, in the latter the shaft of the long bones and the skull.

To the close clinical observer the pictures of the disease will at once show decided differences; the few autopsies fully reported of osteitis deformans show no resemblances, the course of the diseases are not parallel, the yielding of bone tissue is absent in arthritis deformans, there is never involvement of the skull cap, there are rarely any of the subjective symptoms or physical signs of spondylitis deformans or Marie's spondylose rhizomelique or "stiff spine" which are now considered by most authorities to belong to the rheumatoid arthritides. Osteitis deformans leads to kyphosis; stiff spine rarely produces this deformity.

Acromegaly does present some resemblances to osteitis deformans but in the former the in-

volvement of the soft parts, the thick lips, the enormous tongue, the invasion of the bones of the face symmetrically, the enormous hands and feet and the decided difference in the facies of the two diseases stand out in bold relief.

Osteomalacia is easily differentiated, as a rule clinically and histologically. The cranial bones are not involved save in advanced cases and then rarely, in even enlargement, there is no marked hypertrophy of bone, the conditions are often favorably influenced by phosphorous and proper food. The bones are symmetrically affected; the deformities are greater in the trunk bones, where they remain limited during long periods, while the extremities are but little involved and not until the last stage of the disease. Patients yield early, soon taking to their beds.

Histologically the two conditions are readily differentiated. In osteitis deformans there are evidences in the bone of a rarefied condition due to absorption, which process is always in the ascendancy. There is the characteristic appearance in the lime ridden areas. According to Sternberg senile osteomalacia is associated with great pain. Puerperal osteomalacia shows primary changes in the pelvis and in the lumbar spine; the gait is paretic and quite different from that of osteitis deformans.

Diffuse hyperostoses which cause narrowing or closure of the foramina of the skull and associated pressure symptoms, such as blindness, exophthalmos or paralysis, are never to be diagnosed as osteitis deformans. Various other bone changes and new growths as a rule show but few resemblances to osteitis deformans and are promptly differentiated.

There will always be cases, however, which the writer characterizes as "purposeless enlargements of bone," in which because of close family resemblances, diagnosis cannot be made early; a limited number will progress slowly during years without accurate differentiation, while in a few the clinician will continue uncertain and leave the diagnosis open.

We know nothing positive of the cause of osteitis deformans. Theories have been advanced, none have been satisfactory. Von Recklinghausen, who holds that the process of absorption is a true osteomalacia associated with inflammation which takes its inception with the destruction of the bony tissue and leads ultimately to the transformation of the medullary substance into fibrous tissue, from which process new bone develops, holds that the exciting cause is *mechanical* and he gives a number of reasons for this conclusion.

It is safe with our present knowledge to cling to Paget's original conclusion that the process is one of chronic inflammation of unknown origin and not luetic. We may hope to reach

positive conclusions in the future if the early histories are carefully searched—and these are recorded. Both of my cases suggest very strongly the possible influence of traumatism.

In 1890, after Paget had seen twenty-three cases of the disease, he made the following statement:

"1. The preponderance of males among the patients affected with this disease is confirmed.

"2. The most frequent ages at which the disease was first observed were between forty and fifty.

"3. The frequency of cancer or sarcoma occurring in those affected with osteitis deformans is confirmed. Of eight cases traced to the end, five died with cancer or sarcoma. This fact, confirmed as I believe it is by the observations of others, is decisive as to an intimate relation between osteitis and the formation of malignant tumors.

"4. I have tried in vain to trace any inherited tendencies to the disease. Many have had gouty ancestors, but I do not think more than any other equal number of persons in the same rank in life."

The morbid anatomy as given by Paget is as follows:

"Periosteum not visibly changed. The outer surface of the walls of the bones irregularly and finely nodular, as with external deposits or overgrowths of bone, deeply grooved with channels for the periosteal blood vessels, finely but visibly perforated in every part of the transmission of the enlarged small blood vessels. Everything seemed to indicate a greatly increased quantity of blood in the vessels of the bone.

"The medullary structures appeared to the naked eye as little changed as the periosteum—the medullary spaces were not encroached upon.

"The compact substance of the bones was in every part increased in thickness—in the greater part of the shafts of the bones the whole constructure of the bone was altered into a hard, porous or finely reticulate substance like very fine coral. In some places there were small, ill-defined patches of pale, dense and hard bone, looking as solid as a brick.

"In the compact covering of the articular ends of the long bones, the increase of thickness was due to encroachment on the cancellous texture, as if by filling its spaces with compact porous new-formed bone."

The microscopical appearance as given by Mr. Butlin is as follows:

"The number of Haversian systems and canals in any given section would seem to be much diminished. The space between the

Haversian canals was occupied by ordinary bone substance, containing numerous lacunæ and canaliculi. The Haversian canals were enormously widened, many of them were confluent, and thus the appearance of a number of communicating medullary spaces was obtained; an appearance that was rendered still more striking by the presence in the canals of a large quantity of ill-developed tissue in addition to the blood vessels.

"The contents of the Haversian canals were seen to consist generally of a homogeneous or granular basis, containing cells of round or oval form, about the size and having much the appearance of leucocytes. Larger nucleated cells were also present, the fibres or fibro-cells sometimes in considerable quantity. Myeloid cells were occasionally observed, but they were not plentiful. Fat also existed in many of the larger spaces, especially in the skull. The vessels were unusually small compared with the channels in which they ran; they did not seem to be larger than those of normal bones.

"The walls of some of the canals were lined by a single layer of osteoblasts—a condition precisely similar to that observed in a normal ossification of the bone in membrane.

"The presence of new bone was most evident in the periosteum of the tibia, external to the ordinary compact layer of the shaft. This external layer was of course but thin, and was much softer and less developed than the cortex of the bone from which it sprung. It evidently was not nearly sufficient to account for the great increase in the diameter of the tibia. There was no similar recent formation of bone on the outskirts of the medullary canal.

"The number of lamellæ surrounding the Haversian canals was no larger than in normal bone, whilst the arrangement of the intervening space was most complex and totally different from that of healthy bone. Lacunæ and canaliculi throughout the sections did not strikingly differ from those of ordinary bone."

As to the nature of the disease, Paget, Butlin, Clutton, Eve, Silcock and others believe it to be chronic inflammation of bone, but Goodhart, Lunn and others do not deem that its inflammatory nature has been proven.

Lunn, who reported four cases in 1885, while admitting that chronic inflammation might have some share in the process, thought that it would not altogether account for the changes found after death. His conclusions were that osteitis deformans consists of:

"1. A constitutional disease, producing atrophy and absorption of a large part of the osseous system.

"2. Consequent weakening of the bones so that they yield when exposed to strain.

"3. Compensatory strengthening by the growth of what may be looked upon as a variety of callous.

"4. The occasional formation of definite tumors.

"5. A fatal cachexia."

Commenting upon these views, Silcock, in 1885, said: "It is difficult to imagine how a process can primarily be one of atrophy and absorption when the first recognizable sign of the disease is the thickening and enlargement of the bone. Nor can the superadded bone in this case be regarded in the light of "compensatory strengthening" of the curves, or of the buttress-like formation, since the mass of it is deposited on the convexity of the curve and not in the concavity. Again, the external thickening of the bones of the cranium is wholly inexplicable on the theory enunciated. As held by Paget and Butlin, the essential features of the osseous lesions of the disease are indistinguishable from, if not highly characteristic of, inflammation."

Packard, Steele and Kirkbride, Jr. (in the *Amer. Jour. of Medical Sciences*, 1901, page 559) considered the case of a man aged sixty-two years thoroughly. It was a classic example of the fully developed disease, there were the usual marked changes in many of the bones of the body, including head, with a frontal tumor, clavicle, changed chest, pelvis and extremities. Nowhere were there evidences of involvement of the soft parts. "The whole attitude of the patient on standing reminded one of the orang-outang." The patient, on admission to the hospital had a large left pleural effusion—this was removed and did not reaccumulate—he grew progressively worse, emaciated, the tumor of the frontal bone grew slowly and he died about one year after his admission to the hospital.

Full autopsy reports of these cases are so rare that I quote from the original paper that this case and the post-mortem findings may be given the prominence they deserve in connection with the study of this rare disease. The sections of the bones examined show the following changes:

"1. The absorption of the healthy bone.

"2. Formation of a new bone coincident, but in no way connected with the absorption process.

"3. The failure of the calcification in this new bone.

"4. The destruction of the regular structure of the bone and the addition of new uncalcified bony tissue.

"5. The formation of a giant-celled sarcoma in the affected portion of the skull.

"*Suprarenal bodies.* Microscopic examination shows these structures to be normal.

"*Hypophysis cerebri.* Sections of the hypophysis cerebri show no abnormality.

"*Nodule from the pia.* Consists of a collection of round and spindle cells with a moderate amount of intercellular substance and with deeply staining nuclei. It is well supplied by blood vessels whose walls consist merely of a single layer of endothelium. In many places giant cells are found. The nodule is evidently a metastasis from the tumor of the frontal lobe.

"The nodule from the diaphragmatic pleura is of the same structure as the nodule of the pia, and has evidently the same origin. It also shows numerous giant cells."

In the *American Journal of Medical Sciences*, 1902, page 801, Prince, speaking of the above report, says:

"This summary is incomplete in that it neglects to take into account the important fact that often calcification does take place in the new bone, and then a different picture is presented.

"Clinically considered, the disease resembles in the peculiar enlargement and deformity of the skull, what has been noted and described in hyperostosis cranii, or leontiasis ossia, and although the two diseases are regarded as distinct, it is interesting to reconsider whether, after all, hyperostosis cranii may not be an incomplete development of the same process, and, therefore the same disease."

Eltinge (in the *Johns Hopkins Bulletin*, 1901, page 345), says that, "Von Recklinghausen has especially emphasized the role played by the action of so-called physiological concussion in the determination of the localization of osteitis deformans, as evidenced by the tendency to involvement of the long bones of the extremities. The newly-formed fibro-ostitic tissue is most marked at the diaphysis of the bones which are the points subjected to the greatest physiological concussion. Von Recklinghausen is also of the opinion that the frequent involvement of the skull may find its explanation in disturbances of the circulation, especially arterial congestion, resulting from the action of mechanical and thermic influences.

"The two most important factors then concerned in the production of the deformity of the bones are:

"1. An hypertrophy of the bone.

"2. A relative softening which accompanies the onset and which appears to be only temporary, being followed usually by induration.

"Chemical examination has shown that the phosphorus is but slightly diminished in the affected bones. The organic matter of the bone, as a whole, is slightly above normal, while the inorganic is slightly below normal."

In the same journal (page 346) his conclusions are as follows:

"1. That osteitis deformans is a chronic disease of the bones which develops in middle life or later.

"2. That the disease is of more frequent occurrence than generally supposed.

"3. That the onset is insidious sometimes in a single bone, but usually manifesting a tendency to symmetrical involvement of the bones.

"4. That there is an especial tendency to involvement of the tibia and femur as well as to the frontal, occipital and parietal bones.

"5. That it attacks both sexes and does not appear to be related to any constitutional disease.

"6. That the etiology is not understood.

"7. That it requires from five to fifteen years to reach its maximum development.

"8. That it is characterized by hypertrophy and deformity of the bones involved, either with or without pain.

"9. That it is characterized microscopically by a rarefying osteitis combined with new bone formation.

"10 That the duration of the disease is indefinite, and that the disease has but comparatively little influence upon the general health, and furthermore, that it is not a direct cause of death.

"11. That the treatment must be properly symptomatic."

Quoting from the two latest works on pathology (Adami and Aschoff) we find Adami holding that "there are two opposing pathologic processes at work, resorption and osseous hyperplasia." In some cases the author says "the affection bears a close resemblance to osteomalacia, eventually calcification may set in and as it becomes dominant the disease comes to an end."

Aschoff does not differ materially from the conclusions of Adami, he agrees that widespread resorption and enormous hyperplasia produce the changes, but he believes that only decalcified bone is formed.

Richard and Ziegler "regard the disease as being strictly comparable to arthritis deformans." Von Recklinghausen, as has already been stated, believes that it closely resembles osteomalacia.

No treatment has had, so far as we know, the slightest influence in controlling the disease. We must depend upon Nature's compensatory provision, by which the denser bone is finally deposited, not entirely decalcified, to stay the disease.



## DISCUSSION.

DR. WISNER R. TOWNSEND, New York City: I wish to mention a case I have had under observation and which is one of four cases I have seen. This patient was a young woman, 38 years of age, who April 29, 1909, was admitted to the Hospital for Ruptured and Crippled. She gave a history that for years previous to this time she had weakness in her left hip. There was no pain, but stiffness was marked whenever she exercised a great deal. One and a half years ago the patient ran to catch a train and upon rising after a few minutes' rest she found that she was very lame and had much pain about the hip. The pain increased with motion. She has been using crutches ever since. There was slight edema of both legs below the knee. There was slight grating of both shoulders, the left being more marked. The wrists were the same. The fingers were slightly, if at all, involved. The temporo-maxillary joints apparently were not involved. Both femora were rotated outwards and the upper end of the left one was very prominent. The femur and tibia of the left side were larger than those of the right. There was no enlargement of the head and no symptoms of headache. There was no enlargement of the bones of the upper extremity and this was tested not only by personal observation, but with X-ray pictures which show nothing abnormal so far as can be seen.

The blood count showed: reds, 4,560,000; white count, 9,000; hemoglobin, 90 per cent.; polynuclears, 67 per cent.; lymphocytes, 26.5 per cent.; eosinophiles, 2 per cent.; transitionals, 2.5 per cent.; mast cells, 2 per cent.

The woman weighed from 105 to 110 pounds, was not large, and apparently was not in any sense diminished in height; but there was a bending at the femoral neck, or what is called coxa vara, and in the upper part of shaft she had a very large area of rarefying osteitis. The tibia was markedly thickened, also the fibula. This woman has been kept under observation and at the present time there is no sign whatever of any increase in the head measurements, or head symptoms, and apparently there is no increase of any other symptoms. In other words, the condition seems to be limited practically to the left lower extremity, although there is a slight change in some of the bones of the right lower extremity. I believe the condition is wholly progressive and this case illustrates very well the type of disease where the head is not involved. Whether the head will become involved eventually or not, I do not know.

Dr. Elsner stated that in his cases the head involvement came early. In this case the woman noticed the symptoms I have mentioned for years, and has never had any head symptoms.

The condition is not as rare as some of us believe, because we have seen four cases, but this is a small number when we consider the large number of patients we have an opportunity of seeing at the Hospital for Ruptured and Crippled during the course of a year.

DR. ELSNER (closing the discussion): So far as a search of the literature of the subject is concerned I was fully convinced we were dealing with a rare condition. At the Johns Hopkins, where they have an enormous material and keep a careful index of their cases, they have had only two cases in 20,000. Osler has seen four cases in his entire practice. There are a great many cases that have never been reported, and after we had found from a study of the references which Dr. Fitz gave us, there were a number of cases in Boston which we would be glad to add to our list, but it seems to me that from reports of cautious observers all over the country, and from Sternberg, who wrote extensively on the subject and collected the literature in Nothnagel's series, the disease is exceedingly rare. If the disease had been limited in the first case to the bones of the body no one would have known the woman had osteitis. Her husband said, "My wife has been bumpy. That is all I had known about her trouble." With regard to pituitary extract in these cases, it has been recommended in the last case, but there has been a great deal of trouble in getting it.

I want to say this in connection with the pathology of the disease that in all post-mortems in which the brain has been carefully examined the pituitary gland has not been changed, as it is changed in acromegaly or in giantism or kindred diseases,

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## THE MEDICAL CONDUCT OF THE OTISVILLE SANATORIUM.\*

By E. S. McSWEENEY, M.D.

OTISVILLE, N. Y.

**R**ECOGNITION of the fact that great good could be accomplished by sanatoria in segregating, educating, and curing persons suffering from pulmonary tuberculosis became general but a few years ago, and almost at the same time the problem of tuberculosis was realized to be much more of an economic than a medical one, using the latter term in its stricter sense. The establishment of a free sanatorium by this city was coincident, though those charged with the administrative control of the disease in New York had accepted and urged these conclusions for many years previously.

There being upwards of forty thousand consumptives in New York City, 80 per cent. of whom come from tenement dwellings, a large percentage of which number could be classed

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as "incipient or hopeful," our criterion of admission, made the problem a stupendous one, and I believe that the wisdom of the dictum of Dr. Biggs, to whose efforts we are chiefly indebted for what has been accomplished in this great work, should now need no argument to support it. At the time the institution was established, he declared that it was only feasible if the cost of the plant were kept down to the lowest possible figure, by providing accommodation which, while affording everything necessary for the patients' recovery and every reasonable comfort, should yet be devoid of all superfluous luxury, as something to which the patients were unaccustomed, and which would only make them dissatisfied on their return home, and therefore not only unnecessary but distinctly harmful, and that the institution should support itself by the labor of its inmates, to as great an extent as the interests of their health would allow.

I am not concerned with nor responsible for the building programme, so pass it over, but the latter principle was a decidedly novel way of treating a novel situation, and it would seem of interest to relate how after two and one-half years of operation, the problem has been worked out. In detailing our present routine, I would lay emphasis on the point that change, especially in detail, has been found necessary from month to month, and believing that no scheme of sanatorium management could be guaranteed by the elaboration of a paper system impractical or loosely applied, no regulation has been instituted but with the understanding that it would remain in force only until something better suggested itself. A word about the class of patients received is first in order, as this is the largest determining factor in our methods. We have accommodation for 203 male patients and room for 52 under construction.\* Our patients range in age from fourteen to sixty, for the most part young men. We have only received women for whom twenty-four beds are available and an equal number building, for the past month, so what is said here relates to the conduct of the men's pavilions. The same principles will be applied with such modifications as seem necessary in the women's unit. This is located about one mile from the men's. The establishment is more or less of an experiment, but the present purpose is to develop three or four separate units of 150—250 beds each, centralization of a greater number not seeming wise. Jew and Gentile, Atheist, Buddhist and Mohammedan, speaking all the languages of the globe, from plain United States up and down the scale, have come to us; college graduates and those who never saw the inside of a school, the socially lowest and a few of the socially best, and many in between, natives of almost every country, with good and bad habits, and the prejudices of their race, the godly and

the dissolute, and but two things in common to all, tuberculosis and lack of funds. Classified medically, we carry at present about 20 per cent. first-stage and 10 per cent. third-stage, the balance being well-established second-stage cases (involvement of both lungs with considerable constitutional disturbance) and a reasonable percentage of chronic fibroids. The incipients we don't get in large numbers, principally because under present conditions working people can't give up working until they are sick, and the third-stage cases come mostly through appeal from influential persons which cannot be denied.

The patients are selected by the department clinics from amongst their own clientele and those recommended by other dispensaries, charitable associations and individuals. This opportunity for selection from a large number, and the knowledge of the individuals obtained during dispensary attendance, is naturally a great help in obtaining not only suitable cases, but suitable persons. Each patient is required to bring a prescribed clothing outfit. The Health Department pays their railroad fare and they are taken to and brought from Otisville on regular days under responsible escort.

Treatment is absolutely free—there are no charges of any kind. On arrival all patients are quartered in a reception pavilion. This is one of the most essential features of our scheme, equally of value to patient and management, so I describe it in some detail. The porch as you notice, provides both day and night accommodation. A reclining chair is provided for each patient. The house is under the immediate care and management of a patient selected from our older residents, because of his intelligence, enthusiasm and proved ability to handle such work, and paid a small sum monthly to fix his responsibility to the institution. The T. P. R. is noted on arrival to determine the effect of the journey and each patient is given a handkerchief and spit box and instructed in their use. All then rest on their reclining chairs for one-half hour to one hour, after which they wash their hands and go to dinner together, being placed at a special table presided over by the instructor previously mentioned. After dinner an hour's absolute rest is required, after which the rules are read by the instructor, who later on, and on the following days, explains the method of making the Klondike bed, and how to keep warm on the porch, and generally makes the patients comfortable and introduces them as occasion demands to their new life and home.

The strong point of this system lies in the fact that the instructor lives with the new patients, has and does everything in common with them (no special accommodation is provided for him) is there twenty-four hours every day and teaches for those twenty-four hours, not only by word of mouth, but by practical example. His opportunity to study a patient's disposition and in-

\* November 1, 1909, capacity 250 males, 110 females.

clinations, to watch his conduct and gauge his amenableness to discipline and likelihood to make good use of his stay is exceptional.

In reading the rules no comment is made, if possible. The rules are simple, direct and cover only essentials, and the new patient is not confused by a mass of regulations which relate only to the daily routine of the institution which he can and does learn to much better advantage by living it for three weeks under careful supervision and guidance. Explanation of the rules and practices of the sanatorium is made in a formal talk to the patients on the day after arrival, by the physician. Also once a week a meeting of the members joining the colony is held at which their questions are answered. I have found this much more useful than a didactic talk. It introduces a personal and active interest into the discussion which tends to wake up even the stupidest, and some of them are certainly pretty dull. From the first it is emphasized that the only person that can cure the patient is himself. We will provide the opportunity, the facilities and instruct him—he must do the rest. For the first two days the temperature is taken every two hours, from then on in the early morning and late afternoon, unless the first record has uncovered an eccentric high point. For a week the patients do nothing but make their beds, and go to meals, provided there is no contra-indication. Patients who cannot do this much are removed to the infirmary. For the balance of the day the others occupy their reclining chairs; the librarian visits their quarters daily where a catalog is kept, and fills orders for periodicals and books from our library of about 1,000 volumes. The only times at which the patients are permitted indoors, are at meals and for ten minutes previously to wash their hands, and between supper and bed-time, when they can write letters, mend clothes, etc. The recreation room is always very well ventilated, in fact, the air inside it compares favorably with the air outside in the city. The sudden change from ordinary city life, even if life in the open has been attempted, to an absolutely outdoor existence, especially in winter, would seem at first glance to entail some hardship and even hazard, and the suggestion is often made that the transition should be more gradual. At first we, too, believed this and sought to gradually accustom the patient to the change, but experience has shown us that there is no real objection and many advantages in the radical step, not the least of which is the very positive impression made on the patient that he is entering on an absolutely new era, which makes him more ready to adapt himself to changed conditions in other regards. Despite the fact that we are located on a mountain in an open country with low temperatures prevailing all winter, frequently going far below zero, these patients neither complain of any discomfort nor show any ill effects from the exposure. On the

eight day the patients begin to do their own house-work and on the eleventh are given in addition a fifteen minutes' walk, morning and afternoon, the temperature now being recorded on return from exercise. Walking exercise is now as at all times taken in squads under a captain, and the distance, degree of ascent, etc., regulated. This is increased five minutes a day until one hour is reached, when if all is well the patient is transferred to one of the other houses and enters on the regular routine of sanatorium life. During the first three days after arrival a very thorough examination is made of the patient's physical condition, including the entire body, the ocular, skin, and if necessary, subcutaneous tuberculin reactions are determined and an equally complete laboratory test of the sputum, urine, blood, fæces, any discharge present, pulse, and if necessary, digestive system is made. At the end of the second week each patient is vaccinated. Abnormalities or complications of any kind are recorded in a special book and thereafter systematically treated as are the patients' throats.

We feel that at the end of the patient's three weeks' residence in the reception division he is thoroughly trained, we know him pretty well and his house assignment is made accordingly. Cases which cannot or will not get well are sent home at this stage. Our numerous small houses have a great advantage. We have an opportunity to classify the patients by religion, taste, age, race, occupation, physical condition, social scale and all the other considerations that must be heeded. This is of very considerable value in eliminating friction and getting the best possible results in each case. It is very difficult to cure an unhappy consumptive. Our latest type of house divides each porch by half partitions into rooms holding two beds each, which gives a maximum of privacy while retaining all the advantages of the open porch. The small house fosters a family and home feeling and results in better care of the house and consequent lessened labor of administration and is preferred by the patients.

The routine followed by all patients in ordinary residence is: rise at 7 (air bed-clothes), 7.30 breakfast, 8 change sputum cup, till 9 to make bed and clean house, 9 daily inspection rounds, on release from rounds occupation or exercise assigned until 12, 12 to 12.30 rest, 12.30 dinner, 1 to 2 rest, 2 to 5 occupation or exercise assigned, 5 to 6 rest, 6 supper, 9.15 make ready for bed, 9.30 lights out—all carried out with military promptness. Our schedule is calculated on the basis of a working colony and so differs materially from the usual and purposely does not vary in general from the patients' home time table. At night a watchman and orderly visit every house once an hour.

The care of the sputum is naturally one of our chief concerns and has never given us a minute's anxiety. Each patient has two cup frames,

identified by number, and must not handle the refills. Each must every day, at the given hour and place, turn in a gauze handkerchief and sputum box, for which he receives another in return. If necessary, the box can be again exchanged at 5 P. M. As only one handkerchief is issued at a time and must be returned there is no chance of mislaying it. The cups are handled by paid patients on a table covered with a sheet wrung out in strong carbolic solution. The contents of each cup are carefully inspected for blood, on which a report is made to the physician on duty before the day's work begins. A handful of sawdust is added to each paper sputum container to aid in its burning and all are then consigned with the handkerchiefs to an especially designed destructor, while the metal frames or holders are boiled for two hours, and then refilled for the following day's use. When on leave, pocket cups are supplied. Any patient coughing without the use of his handkerchief or spitting elsewhere than in his cup or being careless in handling the box is dismissed. Coughing is discouraged as much as possible and it is no exaggeration to say that amongst our 200 patients a cough is rarely heard. Equally stringent and systematic rules are enforced as regards the handling of soiled laundry, the use of clean bed linen and towels and other matters bearing on this question. All utensils, dishes and table furniture are sterilized after use. Considering the care taken of the sputum, the constant scrubbing and disinfecting, free access of air and sunlight to all buildings and constant use of carbolic acid and formalin it is fair to assume that the air is almost, if not absolutely free of tubercle bacilli at all times.

Every patient is weighed stripped once a week, every up patient has a complete lung examination monthly, which includes a critical review of his condition and symptoms for the previous thirty days with appropriate advice. The blood and urine are tested as occasion demands and the sputum is examined up to three times every month until tubercle bacilli are demonstrated. Our laboratory makes about 500 sputum examinations a month at present and each negative slide is searched with the aid of a mechanical stage. Specimens are taken from boxes usually, but when negative a morning specimen is obtained and every other measure practiced to get a positive result, such as varying staining, potash disintegration with centrifuging, etc. Blood examinations include hæmoglobin, red and white cell, and differential count and coagulation time estimation. Urine is always tested from a twenty-four hour specimen and includes every practical quantitative and qualitative test. As yet we have no provision for research laboratory work but have been able to test the value from our standpoint of many of the ideas brought forward in the past year. Our system of records is that in use in the tuberculosis clinics in the

city somewhat amplified, and covers the usual range of topics. An important feature is a weekly statement of each patient's condition sent to the New York office of the department for the information of any one interested in a patient.

Every patient unable to make his bed and go to meals is housed in the infirmary. The institution is not intended for nor is accommodation provided for treating a large number of sick patients. Our facilities about suffice for taking care of acute complications, so no patient is harbored long in bed. It is an injustice to such cases not to provide them with absolute rest and persons to wait on them, so if after a reasonable time a patient shows that he needs such care (which we cannot give him) in his own interest he is transferred to one of the city hospitals. Life in free air for almost the entire day and night, irrespective of the weather, is secured by providing properly protected porches and insisting on their use. All of our buildings consist of two long deep porches with provision for light and ventilation and a central dressing room. There is not a single indoor sleeping room. Special accommodation is provided for plumbing so that every house has its numerous windows and doors open at all times without resultant damage and most of the windows are permanently fixed open to insure proper ventilation, and no fires are allowed from 9 A. M. to 6 P. M. During the evening, however, the stoves make the recreation rooms comfortable and the dressing rooms are well heated night and morning when the patients go to bed and arise. The degree to which open air life is carried at Otisville is judged even by the standard of many of the larger sanatoria, excessive. It is much less extraordinary, however, than it seems to the uninitiated. The mere fact of constant exposure to fresh air not only relieves most tuberculosis symptoms but greatly improves any patient's appetite, digestion, sleep and general feeling of well being, so that after two or three days a dislike for indoors becomes a fixed habit and the patient is not only as comfortable but much more so when outside. Of course, proper clothing is required and this, as I mentioned before, every patient must bring. The size of the bed, the number and kind of bed clothing, and their arrangement, to afford the best protection, is carefully looked after and every patient has an extra colored blanket rolled on his bed for use as a porch rug. In leisure time the use of the beds for lounging is encouraged. The sanatorium furnishes proper clothes when the patient or his family is unable to do so and each patient is supplied with a fur coat made of canvass and sheep skin. Attractive well lighted porches, protected, but yet well ventilated, are the most essential feature of sanatorium life in winter. Diet, the second of the trio of modern tubercular treatment, is provided for at present by a generous varied menu of good, nutritious food. We have

as yet adopted no ration or dietary for our patients preferring to be guided by our own experience rather than the prescribed standards before determining our own. For this purpose we have tried the various methods of over-feeding, various foods and combinations and are accumulating much information both from a medical and administrative standpoint that will enable us to act intelligently in the matter when our observations are complete. I would simply mention in passing that our whole trend has been away from all forced feeding and towards a lesser protein content; for the past three months we have given but three, plain, wholesome meals a day (no extra milk or eggs) without in any way affecting our weight averages unfavorably. Whatever may be the necessities under other conditions, my impression at present is that for our type of case this plan is probably the best and that which we shall adopt. Patients who spend practically their entire time outdoors almost necessarily have large appetites.

In the vestibules of our dining hall racks for the sputum boxes are placed and any one requiring to cough or spit must go outside. The tables are oil-clothed covered and paper napkins are used. The dining-room service is performed entirely by patients who wash and carbolize their hands in the building before each meal. One-half hour at the table for each meal is obligatory. A diet kitchen provides for the infirmity cases.

In connection with the dietetic treatment we have a dentist who regularly examines and treats all teeth needing attention.

Recreation is provided by our library, by not too violent outdoor games, such as clock golf and croquet, by an occasional picnic with games, card and checker tournaments, debating society, illustrated lectures and vaudeville or minstrel show or concert on holidays. The talent for these comes entirely from the patients and preparation and performance serve equally as a means of amusement. Every two weeks a short informal talk with stereopticon is given on tuberculosis and allied subjects; the series being repeated twice a year, thus teaching hygiene to a large number from the class who need it most. In connection with this we maintain a permanent exhibition with the features that are now familiar to all. Religious service is held every Sunday by the pastors of neighboring churches. On Christmas and Thanksgiving a special dinner is served and on the former day through the generosity of private persons a Christmas tree with a very liberal supply of excellent presents has been a feature. At all times effort is made to develop an intimate acquaintance with each patient and to be of service to him in personal or family difficulties. The few boys of school age that have been patients have had their education carried on by the nurses so that they should not suffer from inability to attend school.

On the porches the patients play dominoes,

cards, checkers and chess, and have in addition wood carving, model making and bead work, etc. As pastimes bedside reading and corresponding tremendously and occasionally darning their socks. Drug treatment is not much in evidence. We use at present, in a few special cases, cod liver oil and fat emulsions, etc., but our main standby is active catharsis. Drugs are never given in bulk for the patient to use more or less at his own discretion. Rest, air and attention to the throat we find much more effective than cough medicines, which are used very sparingly because of their ill effects. We have tuberculin, mercury, and breathing mask classes and hope to be able to accomplish something with them.

*Discipline.*—On the whole is excellent and considering the close association of such varying characters, remarkable. Aside from a moderate amount of trouble with drinkers we are bothered but little and that only as regards petty refractions of rules. Each house has a captain in charge, a position of honor given to the one most apt to enforce neatness, cleanliness and discipline. These meet twice a month with the supervisor and physician in charge to exchange ideas. This helps in the smooth running of things generally.

Choice of work, leave to go off the grounds, and such privileges are granted in return for good conduct and work, and exclusion from the library, etc., serve as punishment.

I have left the discussion of the problem of rest and exercise for the last as the most important. It is Otisville's most distinctive feature. Other institutions, of course, work their patients, and almost all of them at present prescribe considerable exercise, but I believe that in no other institution has this subject received more attention or been developed more fully or carefully, while the principle of the patients working the institution is almost unique. There is at present no subject in regard to sanatorium conduct more debated than this, so perhaps a statement of our argument is not amiss. We contend that graded work properly and carefully prescribed, according to the patient's capacity, judged not by the single standard of body temperature, but of improvement taken as a whole gives as good if not better results than the rest cure.

In the treatment of tuberculosis to-day we have few forces at our command. On the subject of air and food and a systematic, orderly existence, all are in general agreed, and I have shown our methods of meeting these indications. There are those, however, who believe in almost absolute rest, those who believe in moderate exercise and those, including ourselves, who believe in work up to the point of contra-indication. Nor is it answering this question honestly to say, "We individualize." I was taught in medical college to always treat my patient for his own and no one else's disease, and I am informed

that such was the teaching and practice for many years before I went to school.

In deciding which course to follow, due weight must be given both to the theoretical questions involved and the actual results obtained. The figures adduced later cover the latter point. As to the former, simply because tuberculosis is a wasting disease it does not demand absolute quiet. Analogous conditions are common in nervous affections, nor has the fact that a city patient is run down from overwork in a factory or shop any great bearing on the amount of work he should do in the country, especially under sanatorium conditions. Intensity is a big factor. While every one concedes that more albumen is lost in exercise than repose, yet it is possible to eat, digest, assimilate and absorb so much more on exercise that the end result is better. If nutrition be the sole point to be considered and claim is made as to the phenomenal gains under the rest system I would refer to our weight tables which are as good as anybody's and better than the average. As to what weight represents under our system and the other there need be no argument.

If it be possible damage to the heart or lungs, or number of complications encountered that contra-indicates exercise or work it will surely show in the comparative results of treatment. Nor is there any reason to believe that our patients only attain an apparent health which is not lasting, owing to the continued strain or repeated slight disturbance; in other words, something which does not show in the statistics at discharge but means much in after years. Such a claim goes beyond the bounds of argument into that of pure assertion and the burden of proof rests upon its sponsors. We have sought the truth and have not found this to be the answer. Every theoretical consideration would indicate the opposite.

An auto-tuberculin treatment is likewise supposed to be in progress among exercising patients, which theory accounts too, for the bad effects of over-exertion. There is a very practical point too, which cannot be disregarded. Although most of our patients come to us strongly imbued with the still common idea that every slightest action should be carefully gauged and in general discouraged as harmful and they are looking for a rest, a vacation, a do-nothing time, yet after a short stay in the reception division it is noticeable that the desire to do something is so strong that even the most scrupulous, or neurasthenic as one wishes to look at it begin to grow restless, and while none of their former conviction is yielded it now applies exclusively to such things as you want them to do and not their own pleasure. If left to themselves almost no amount of watching will prevent secret excursions, long walks and rough and tumble play. The patient is going to do something and it might as well be something useful. If you absolutely insist on him keeping inactive and your super-

vision is sufficiently good to insure his doing so, he goes home. When I say inactive I refer of course to actual muscular exertion. Porch amusements in endless variety and amount will not fill the void. Even the patients whom we are obliged to keep in bed for any time, unless acutely ill get peevish and discontented, and I think anyone who has had experience elsewhere will agree with me that this is not peculiar to our institution, nor due to its spirit that all should be up and doing.

Some of the best men under the older system, as Turban, sought to get over this difficulty by composing a daily routine which called for some definite and varied action by the patient every half to an hour though the sum total came to nothing in the way of exertion. If these considerations apply in great measure to all sanatoria how much more must they be considered in our institution for the working classes. Certainly even if at least more is not lost than gained thereby our patients should be occupied, as they come of the self supporting classes, accustomed mostly to physical activity and must return in a reasonable time to some gainful occupation or probably become hospital habitues and permanent public charges. There is nothing so absolutely demoralizing to the average man as enforced idleness without any of the physical discomforts usually associated with loss of position and a reasonable excuse ever at hand to still his conscience. Whether it be possible to achieve a cure that will remain a cure under the conditions of ordinary existence for persons in any class by the rest treatment with or without the customary, almost negligible exercise, it certainly is improbable amongst those who have to make a living and for the most part support others literally by the sweat of their brow. It is folly to rest these people for months and then return them to their old conditions without any preparation. An inactive life is not only distasteful to these patients after an initial rest, but has a distinctly bad effect on their nutrition, not only because of the mental discontent, but as I believe because their physiological processes have become adapted to other conditions and will not adjust themselves to a life of indolence. It is well to remember too that though patients may not do well on perfunctory exercise which does not diminish self concentration they may thrive on purposeful work and it is far easier to make them take their necessary rest when they do so not simply as a duty, but from inclination. Heart muscles of high muscular grade for years cannot be maintained or strengthened by fat deposition. Working people for the same reason tolerate work in larger quantity when tubercular. Granted then that exercise is good at first glance there would seem no reason why it should not take the form of useful work. The objections chiefly made to so employing such patients, however, are first that the tendency to sacrifice the

medical to the material advantage is great and unconsciously irresistible, secondly that such work of its very nature tempts to and results in over-exertion as the patient strives to keep up to complete the allotted task, and thirdly that it is impossible to combine that strict medical supervision which this program makes especially necessary because of the previous objections and efficient service. It is claimed therefore that the economic value of patients work performed to a certain extent as task labor and as it must be irregularly is practically nothing. A description of our methods and actual accomplishments is our best answer to these criticisms. Our system comprehends these steps; an initial rest, a long period of very carefully graded gradually increasing labor and an end stage of work approximately equivalent to that of the occupation they will pursue after leaving us. Incidental to the last two, the working of the institution by its inmates.

The chief difficulties met in applying our methods are the voluntary and involuntary breaks in the continuity of the work done. As for the voluntary breaks, as mentioned these patients come to us with exaggerated ideas of the ill effects of exertion on their part due to strong persistent education. The normal human don't labor steadily for love of it, the normal American hates to be bossed, so when his inclination is backed up by his conscience which finds itself buttressed by positive and authoritative teaching, he yields very gracefully and treats himself as kindly as possible, any allowance made being for what he wants to do and not what you want. If you come to a sanatorium quite convinced that you are very sick, an object of the solicitous care of a great public department, and your welfare even of interest to the community in general as a victim of the great white plague, and find that instead of being coddled and having people to wait on you, you are waiting on others and perhaps are unceremoniously docketed as a member of a gang to pick up papers or almost before you know it you are chopping wood for several hours a day, meek indeed would be the spirit that would not revolt. Deliberate shirking however is not tolerated. Our rules demand, under pain of dismissal, that work assigned shall be done "well and cheerfully." The involuntary breaks are represented by tubercular and other contra-indications to work (even those which would not be classed as such under home conditions demanding and receiving attention in a sanatorium), also the time necessary for medical treatments, examinations, etc., and systematic institution conduct such as exchange of laundry, bathing and the like. However, we do it and in this wise: The initial rest is represented by the reception pavilion residence of three weeks, one week of which is spent in almost absolute quiet, the balance including the easiest form of exercise. About one-fifth of the patients fail to complete their course in three weeks and remain un-

der the same strict observation for from one to four weeks longer. None are allowed to leave until they can take an hour's walk morning and afternoon without rise of temperature, excessive pulse rate, cough or other symptoms possibly referable to their exercise. It is interesting to note that about 90 per cent. of the patients show such disturbance for three or four days after admission. We are in the habit of referring to them as not yet our patients until they get over this stage. The magical effect of rest in bringing them to a normal condition in one week is of course no argument, for its indefinite continuation as the causative factors are almost wholly removed on entrance to the sanatorium. The period of three weeks has been determined as an average by experience. It is necessary to begin to prepare these cases to return to the city as soon as possible as their average stay is of necessity short. Doubtless the contrast of absolute rest with their former life accounts for the immediate effect obtained. On discharge from the reception pavilion a patient is assigned to a class designated by number. There are eleven of these classes including subdivision—number one being the lowest—and a group below these comprehending all patients not working. Inability to do housework does not bar a man from one of the regular houses, but inability to make his bed and go to meals implies transfer to the Infirmary. Economy and practical considerations of management make this necessary, our plant consisting of twenty-two buildings and covering about twenty acres.

I present herewith the schedule showing the occupations assigned to members of each class. Practically all the work of the place is thus accomplished. Our patients do their own housework, wait on table, wash dishes, tend fires, drive, examine sputum, do carpentering, clerk and fill a great variety of other places. Every patient is first assigned to and tried out in Class 2-A. Of course, individual capacity even at this stage varies greatly, but there are many factors which make the entrance into a working class quite an advance over even the sixty minutes' maximum exercise of the reception pavilion, so experience has shown the necessity of this course. For instance, while no definite amount of exercise may be designated yet it is found neither feasible or desirable to limit reasonable strolling about the grounds in the evening, or the going to the office for mail, etc. Working patients have to walk to and from, and some of them during their work, more housework has to be done by fewer men and in less time, etc., etc. The total amount of exertion by a man in this class, as shown by repeated test, is as follows: Three times a day or one or two minute up and down hill walk to meals, one hour's housework, two hours peeling vegetables or picking

up papers, etc., a half-hour's strolling about the grounds. The latter is indulged in by very few in bad weather and almost all, unless forbidden, on pleasant days. After one week a new distribution is made and from now on patients are, as far as possible, if consistent with their health, assigned to specialized work according to skill and preference. We have the choice of men in almost every occupation, though most of the patients are unskilled. A glance at the table of occupations assigned will show how this is taken advantage of. Every one is required to spend at least two weeks in the dining hall service, and desirable occupations are assigned in rotation or in connection with the discipline as mentioned. Indoor and outdoor occupation is always alternated. Of course, indoor occupation does not carry the same meaning here as in ordinary life, all the buildings, work rooms, shops, etc., being specially designed. Each physician takes care of about an equal number of patients as represented from week to week by a varying number of classes. The temperature and pulse of every worker is determined every evening, a large percentage according to indication every morning, and, if necessary, oftener. It is the business of the physician of each class to keep in intimate touch with each worker in that class, and to prescribe for him as to rest and exercise as well as medication and treatment. As noted before, any patient having blood in his sputum is reported before work begins, and any one can report sick at any time and be excused from work if necessary. The doctor must see and question each individual and determine his exact condition daily, and the visiting physician, Dr. Slade, sees all cases which are not doing well, weekly. A record of the common symptoms of tubercular fatigue is kept in a separate book for each patient as determined by questioning, including headache, tired feeling, pleurisy, loss of appetite and chest pains. The pulse and temperature are entered on corresponding lines, the whole presenting a very complete picture for quick reference. Weekly weights are taken Friday evening and all data tabulated, and on Saturday a conference is held between the chief and assistant physicians, at which each case is considered in relation to his record for the week, weight, lung examination, monthly summary, etc., and transfers made from class to class as seems desirable. In this way the most intimate knowledge of each individual is not only possible but obligatory, and it is not possible for any patient to remain stationary or slowly slip back without attracting attention. The object sought is always to progress towards the next highest class until the final class, implying six hours' steady work a day for one month, is reached, as nearly as possible providing for what the patient

anticipates doing when he leaves. Any patient who spends a month in this last class is practically living under the same conditions as in a working colony—an excellent transition from sanatorium to everyday life.

If a patient retrogrades the reason must be determined. Sometimes a case stationary for a time is started on a new career of improvement by undertaking heavier work.

Transfer from class to class during the week is only made in emergency, but transfer from position to position in a class is frequent, though for reasons of efficiency naturally a patient is, if possible, left in one position for one or two weeks. Many hold the same positions continuously.

The initial period of residence in the sanatorium is three months, usually extended to four or more, dependent on condition and conduct. The average stay of our patients is between four and five months, and excluding those who leave in less than one, between five and six months. Patient, employees, however, about balance this number. The majority leave because their families need their support, but quite a few through sheer restlessness. This suggests the necessity of greater provision for the support of patients' families. The progression from class to class varies greatly in rapidity; we endeavor to place all patients in Class 3-C as soon as possible, but about one-eighth never go beyond 2-D. Once a patient is in good condition restricting his exercise to a known quantity, especially where, as at Otisville, grounds are large and opportunity to roam abundant, is a difficult task. Repeated instruction, even to the most intelligent, seems wasted. By this method, however, and by a careful study of individuals as group types and maintenance of reasonable patients' limits, without imposing any harassing restrictions, we know exactly how much and what kind of exercise and work each patient is doing and where he is at any minute almost of the day.

Assignments for the following week are made each Saturday afternoon, effective Sunday morning. We have not yet found any difficulty in supplying all the positions as waiters, orderlies, etc., which must be filled continuously in order to keep the institution running smoothly.

The work assigned is carried out under the immediate direction of the supervisor, head nurse and matron, and the physicians, as regards the laboratory and the like. I must now beg pardon of the society for this long and, I fear, tedious recital. What will strike most of you, I believe, is the enormous amount of detail in this work, and this must be the excuse of my paper. Unfortunately we cannot do any one big thing for the tubercular, so our only hope is in doing the many little things very well. Success will be achieved in direct proportion to the intimacy of your regulation of the patient's



whole life. In addition to the labor involved in what I have outlined, about as much effort again is spent in regulating and making smooth the general institution conduct and in supervising the bookkeeping and reports incidental to public departments. Despite this our entire staff consists of only three physicians and three nurses, our entire pay-roll carries but fourteen names other than patients, including domestics in three houses, and shows a total monthly outlay for salaries and wages of about \$6.00 per patient, almost half of which is paid for patient-helpers. This expresses as well as anyway the amount of work done by our patients. I have not yet seen any calculation of such work in hours, dollars or employees that was not unsatisfactory and misleading. It has been our policy to pay for such work as it seemed unfair to ask a patient to do, or when added responsibility was necessary and could be so obtained, as in the laboratory and in the sputum house. In other words we pay for responsibility—not for work.

As to results, last year we discharged 303 patients, with 10 per cent. plus apparently cured and 33 per cent. plus of arrested cases. Excluding those who remained less than one month, the percentages are considerably raised. These figures are as free of deliberate sophistication as those of any sanatorium, in fact judging by the standard of many, we do ourselves a great injustice; considering the class and length of residence, nothing better has been accomplished or can be expected. Many severe cases make surprising improvement. As to immediate ill effects from the work done, I would refer to our sick list which has averaged five a day for 1908, including Infirmity cases in an average population of 137. Hemoptysis or temperature elevation above 99.5 is uncommon and dry pleurisy and chest pains so far as I can determine about as common as anywhere else. Undoubtedly this is largely due to the careful oversight. Whether common coryza is overcommon or due to the working of the patients is hard to determine. About the same symptom complex can be produced in both ways. Owing to the constant intercourse with the neighboring village, the weekly arrival of new patients from the city and the presence of a large force of mechanics on the grounds, infection is difficult to control. We have not had a single serious case of illness develop in the sanatorium nor have we seen a single severe complication or a case become progressive where the work seemed a determining factor, whereas it has often appeared to be the only efficient therapeutic recourse that we had.

Carrying such a program through successfully is a large work and I would advise no one to undertake it unless he is prepared to labor early and late and meet much discouragement. Worst

of all is the patients' indifference and passive opposition to your efforts. However, most of our patients are getting well cheerfully and it is a pleasure to be with and help them. On discharge we reckon the gain in an average case thus. We have kept him for some months from the possibility of infecting others. We have taught him by word of mouth and especially by practice to lead a clean methodical life, to discipline himself and to respect the rights of others. We have by an appeal to his æsthetic sense, by buildings, grounds, meals, entertainments and general tone, elevated his mental and moral sense and we have improved his health in varying degree up to full recovery. He is, he must be a better man, a better citizen and a more safe tuberculous patient. He leaves us with a good prospect of life and usefulness, knowing how to care for himself and able to support his family.

Both we and they are happy in the thought that they are busy doing useful work and not sitting about morbidly discussing their disease. It is a satisfaction too, to believe that you have done as much and possibly much more for them as under the old system and that there is every reason to think that what you have accomplished is much more apt to endure while in the process you have preserved the patients economic health. Certainly the old reproach that sanatoria turn out a small percentage of physical cures and a large one of loafers challenges their right to existence. It does not apply in our case. So far as opportunity permits we employ ex-patients permanently in the conduct of the farm, building operations, etc. Holding this out as an inducement for good conduct during residence. We hope soon to systematically educate all our patients either in outdoor pursuits or work which they can follow with safety on leaving us and to very greatly enlarge the scope of our provision for placing discharged cases, a matter on which we are now dependent on others. Every patient is carefully advised as to his future conduct on leaving and his discharge reported to his district clinic so that he will not be lost sight of. This question of after care is the weakest point of the present day sanatorium and we are bending every effort to better it.

In conclusion I would ask any of you who are treating these cases to aid us in changing the formula of advice from the stereotyped "Rest, fresh air and good food" by substituting "Properly directed exercise and work" for the word rest. Fresh air, food and freedom from strain are the real essentials, and this almost universal admonition tremendously increases our work and that of others who are attempting to really do something for the tubercular, and is based on the false assumption that rest is equally desirable for all classes of consumptives. They rarely get over such teaching even if they recover.

## SOME PROBLEMS IN RELATION TO NURSES' TRAINING SCHOOLS.\*

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THE relation of the physician to the Nurses' Training School has been a limited one up to the present time. He has been a docile lecturer receiving his commission by grace of the trustees, subject to the jurisdiction of the graduate nurse as superintendent; but so far as the physician's influence goes in the state administration of the Nurse's Training School it might be described in much the same terms as were used in regard to the snakes in the familiar history of the snakes in Ireland. The present control by the Regents has been brought about without the initiative of, and almost without any opposition by the medical profession, and this in spite of the fact that the nurse has been most dependent upon the doctor for her vocational existence. The enviable distinction enjoyed by the trained nurse did not escape the observation of Dr. Osler, who in one of his addresses regretted that the nurse, in this country at least, had supplanted the medical student in the affection of the hospital trustees. It is to be noted that in recent years the physician is being placed on hospital boards of management, and in the future it is possible he may regain his original privilege to influence the evolution of his trained assistant at the bedside. In that earlier period of training schools from 1872 to 1904 that we might style the era of control by the hospital trustees, for this influence seems to have been dominant, there was a mercenary use of the nurse for private work that, while it added to the hospital revenue, also materially shortened the term of theoretical training. Let us concede that the primary consideration in organizing training schools was not a sentimental one but based upon economic considerations. This plan multiplied all over the United States must have averaged fairly well, for after thirty-two years, in 1904, there were 21,844 pupils in 867 schools in the United States among 1,484 hospitals. In this state alone there were 79 schools registered. [Thompson.] About this time begins what we may call the era of control by the New York State Nurses' Association. That organization in 1903 sought the aid of this society to have passed the Nurses' Practice Act for the examination and registration of nurses. This was urged on by President Hopkins in his Inaugural, endorsed by a committee on President's Address, made up of Drs. Roosa, Ely and Kraus, and approved by this society; so that we are partly responsible for the result of this legislation, be it good or bad. The bill passed with no appropriation of funds for its application, and under its provisions was referred to the

Board of Regents for administration. Here it was found so faulty and indefinite that it was held up for a year until subsequent legislation could remedy its defects. The first syllabus for guidance of Nurses' Training Schools in the preparation of students for Regents' examination, as provided for in the Act of 1903, was outlined by a committee on education of the New York State Nurses' Association in 1905. Since then it has been revised by the Association and the Board of Nurse Examiners, with the approval of the State Education Department. The last syllabus, No. 441, 1909, was prepared by an Advisory Council of Nurses' Training Schools, aided by the State Board of Nurse Examiners, and approved by the State Education Department. Therefore, we may not inaptly call this the era of control by the New York State Nurses' Association. Those who have been responsible for the system so far devised for the education of nurses have proceeded upon the assumption that the vocation of nursing is a profession in the sense that is recognized when we speak of the learned professions of the church, the law, and medicine. Upon this error it is unnecessary at the present time to dwell. It resulted that physicians lectured to nurses as they themselves have been lectured to when medical students, and nurse examiners asked questions on pathology and practice. It is not to be wondered at that megaloccephalia became rampant among nurses. The danger of this sort of training has been discussed by Dr. Osler in one of his addresses at Johns Hopkins Hospital in 1897. He said, "With the fullest kind of training you cannot escape from the perils of half knowledge, of pseudo-science, that most fatal and common of mental states. In your daily work you involuntarily catch the accents and learn the language of science, often without a clear conception of its meaning. I turned incidentally one day to a very fine example of the nurse learned and asked in a humble tone what the surgeon—whom I had failed to meet—had thought of the case, and she promptly replied that 'he thought there were features suggestive of an intra-canalicular myxoma,' and when I looked anxious and queried, 'had she happened to hear if he thought it had an epiblastic or mesoblastic origin,' this daughter of Eve never flinched, 'Mesoblastic, I believe,' was her answer. She would have handed sponges—I mean gauze—with the same sang-froid at a Waterloo."

Whether the quality of nursing has been bettered since the control by the Board of Regents is an open question. It was expected that the high pressure system of that body would be applied, yet as a fact, the zeal of those who represent the State Nurses' Association has outrun that of the Department of Education. Had the Board of Regents not refused their approval of their plans for entrance qualifications more

\* Read at the annual meeting of the Medical Society of the State of New York, at Albany, January 26, 1910.

than half of the 124 Hospital Training Schools in the State of New York would have been put out of business, and the present syllabus would be practicable only in large municipal hospitals, and every graduate would be a specialist. One of the tendencies in the United States is to plan the course of instruction for the evolution of hospital administrators, ignoring the public demand for ordinary and domestic nurses. Dr. W. Gilman Thompson states that "In 1908 there were in the United States 935 training schools for women nurses, with 22,100 pupils among 1,484 hospitals, and an annual graduation roster of over 5,600. At the present time there are more than 500 pupils in attendance at the schools in this state alone. Twenty-two thousand nurses constitute a good sized army. I think it a conservative estimate to say that fully \$10,000,000 are invested in the housing of this number of nurses. Recently two new nurses' homes have been opened in New York City alone, one for the Bellevue school, costing with its lands and furnishings over \$700,000, and one at the Metropolitan Hospital on Blackwell's Island, costing, without the land, \$350,000. In that city alone also within the past decade three other school buildings have been erected, one costing \$500,000 and the other \$300,000 or \$400,000. The training of nurses involves to-day a very large financial outlay and the interest on the investment, together with the cost of maintenance reaches several millions annually, but the community receives its financial return many times over in the value of the lives which are saved through the improved care which the sick receive."

We are not seeking to dim the bright gems that adorn the crown of the modern nurse. She is established and we cannot do without her, but at this time we are discussing the system of nurse training, and may we not inquire whether for this enormous outlay the general public is receiving as much as it deserves. Twenty-two thousand and one hundred nurses are engaged in hospital practice and 5,600 annually turned into the stream of nurse practice. It is estimated that they do not remain in active service longer than ten years. Is it not wasteful to spend so much time in preparation for ten years' service? It is also calculated that even after this valuable education of graduate nurses, only 10 per cent. of the nursing outside of the hospital is done by them. Is this the best return that the hospitals can give to the public that supports them? What has the nurse organization done to meet the crying needs of the poor and middle classes for nursing at a moderate cost? Is it possible to reconstruct our nurses' training schools so that more than 10 per cent. of the nursing that physicians are interested in securing for their clients shall be provided for? Is it necessary to teach so much in order to train a good nurse; or to put it another way, are not two years long

enough for training? Ought not specialism in nursing be provided for by post-graduate courses in the large hospitals that are especially equipped for such work, rather than to load this burden upon the smaller hospitals of twenty-five to fifty beds, doing a most necessary and laudable work in their own field? Ought not a certain degree of autonomy be allowed the various training schools by the Regents so that local conditions can be met? Furthermore, carrying out the principle embodied in the constitution of this Society, namely, "to direct public opinion in regard to the great problem of state medicine" ought not the 6,762 members of this Society to get in closer relation to the educational department of the state and help it in its effort to administer a law, originally no more sought after by the Board of Regents than by the physicians of this state.

The nurse training school presents a more complicated problem in relation to hospital administration than does the medical school. It therefore should be considered from the standpoints of the various interests centering in the hospital, and these may be grouped as follows: The public, the trustees, or governors, the medical staff and the nurses' training school. At the last annual meeting of the American Hospital Association a special training school committee reported upon the possibility of standardizing the teaching of nurses. The report followed upon an extensive correspondence and repeated conferences with physicians, surgeons and training school committees of various associations, hospital and charity organizations in the United States and Canada. The result was not very definite owing to the present state of hospital work and the various types and sizes of hospitals in city and town, and another committee was appointed to fully investigate the subject of nursing of people of limited means in their homes and the education of trained attendants for this work. Here are subjects of vital interest, not only to every physician, but also to his clientele, where a trusty helper is needed to carry out his instructions. Here, too, is the American Hospital Association formed by the trustees and superintendents of the leading hospitals of the United States and Canada, numbering nearly 500, and therefore representing the public, the governors, the physicians, and the nurses. Included in this association are members of the Medical Society of the State of New York. The Hospital Association seeks enlightenment in formulating its report upon this subject in which we are all interested. Now, why should not this society of 6,762 members have a voice in this evolution of a more ideal nurses' training school: why should not this body also appoint its own representatives to advise the educational department of the state or at least to ratify the appointment, by the Chancellor of the Board of Regents, of the Medical Council. It may not

be generally known that such a body exists and that four out of the five Medical Councillors to the Regents are members of this society. The Nurses' Training School Council made up of an equal number, seems to have both ears of the Board of Regents, and so far as I can ascertain the advice of the Medical Council is not sought.

With the hope that our prerogative may be exercised wherever our interests are presented I will at the proper time offer the following: It is moved that the president appoint a special committee on Nurses' Training Schools consisting of five members to confer with the State Department of Education when necessary; to affiliate with other organizations in matters of common interests; to co-operate with the committee on legislation; and generally to advance the mutual interests of this Society and Nurses' Training Schools.

### THE RELATIONSHIP BETWEEN THE STATE BOARD OF REGENTS AND TRAINING SCHOOLS.\*

By JOSEPH MERZBACH, M.D.  
BROOKLYN, N. Y.

**H**ISTORY teaches the fact that the development of the nursing problem has been dependent upon three factors: the direction and manner in which the science of medicine had developed, the necessity for the assistance given by nurses and the associations formed by nurses. This explains in a rough manner the fact that we find no attempt of training women for the difficult vocation of nursing the sick before the beginning of the 19th century. Whatever nursing had been done up to that time was carried on by a few Catholic and religious orders. But under the powerful influence of the murderous battles that were fought in the Napoleonic wars and the crying needs of the wounded a great many large hearted women and men gave themselves up to the arduous duties of the voluntary nurse. The spirit of freedom that pervaded the whole continent of Europe as the result of these struggles also found its way into medicine freeing it from the shackles of speculation and prejudice and placing it on the foundation of exact knowledge. This brought with it the conviction that the proper nursing of the sick played a more important part in the service of medical effort than the mere medicinal treatment. And so a number of religious and non-sectarian orders were formed the sole object of which consisted in educating nurses for assistants in hospitals, sanatoriums, private houses and on the battle field. These training schools have to this day a never ceasing control over their nurses called Sisters, because they receive

no financial emolument for their services. The interests of the orders and those of the hospital were found to run in very different channels. Conflict was inevitable under the circumstances. This fact together with the rapid increase of municipal and private hospitals, sanatoriums, the general advance of prosperity and the immense development of non-medicinal therapy as electricity, massage, hydrotherapy has paved the way for the appearance of the professional nurse who receives a financial compensation for her services.

The absence of all supervision by the State or municipality rendered it possible for individuals to step into the ranks of nurses who had no other qualifications for fulfilling the duties of a most difficult vocation than their self-confidence. And so all civilized communities have adopted laws which control and govern the education of nurses on one hand, and on the other try to give them the protection to which they are entitled as a compensation for the strenuous course of training introduced through these very laws. The intention of the legislative bodies has been as a matter of course to provide for an education of nurses that would enable them to take proper care of the sick. Whether the agencies used in the process of this educational development have been always of a character to fit the legislative intent, has become a matter of doubt in the minds of many medical men. It will be therefore the purpose of this paper to investigate the relationship between the bodies which find it incumbent upon themselves to develop the details of legislative purposes and the schools which are maintained to serve the practical, theoretical education of nurses. I approach my task with great hesitancy because of the short time during which I was brought in touch with these problems. Aside from the interest that the physician is compelled to take in the education of his assistant the importance of the subject will be apparent from the fact that the number of training schools in the United States has increased from 35 in 1890 to over 900 in 1906. At the present writing the number is estimated at nearly 1,500. This immense growth of training schools has been rendered necessary by an increase in the number of hospitals which is unprecedented in the history of mankind. At the same time it has been productive in rendering the task of procuring a sufficient number of applicants one of great difficulty. You would not believe it possible that the highest educational body of this State would consider this trying period opportune for testing the outcome of an experiment. And yet I am unable to look upon the regulation which exacts from the applicant the filing of papers showing a one year's course in a high school or its equivalent in any other light. My own inquiries as to the bearing which the high school requirement has had upon the number and quality of probationers have resulted

\* Read at the annual meeting of the Medical Society of the State of New York, at Albany, January 26, 1910.

in the following three letters. The secretary of the state board of North Carolina writes as follows:

"DEAR DOCTOR: In reply to your inquiry will say that the educational requirements of our Board of Examiners have not caused a shortage of students in our training schools. At some seasons of the year it is difficult to get probationers. At all times it is difficult to get just the kind of women we want.

Yours respectfully,  
MARY L. WYCKE."

From West Virginia I received the following reply:

"DEAR DOCTOR: Our requirement of high school education has been in force for such a short while that I am unable to say that it has had an appreciable influence upon probationers, but I am sure the board examinations are having a good effect upon the curricula of the training school.

Very truly yours,  
GEORGE LOUNSBERRY, M.D."

The answer of the secretary of the state board of Maryland gave the following report:

"DEAR DOCTOR: Referring to yours of the 29th inst. I beg to say that the requirements of a high school education for entrance in the training schools has in a large measure reduced the number of desirable applicants in the smaller and poorer schools. In the best schools, however, the number of desirable has rather increased than otherwise. I remain,

Very truly,  
MAMIE J. LACKLAND, R.N."

I desire to embrace this opportunity for expressing my gratitude to the three secretaries for their courteous and speedy replies. The last letter contains the keynote of all communications that have been received by Miss Aikens, from superintendents of hospitals scattered throughout the states. Of twenty-four replies six were favorable to the enactment of a high school requirement, sixteen were unfavorable and two neutral. The majority is unequivocal in the expression of the sentiment that higher education would be desirable, but is not practical for two reasons: It diminishes the necessary supply; it bars out excellent material. It is perhaps of interest to know that Germany declined to accept the high school requirement for admission in training schools for the identical reason. Some of the letters state the same fact that has been emphasized in Miss Lackland's letter, namely, the severe manner in which this regulation affects smaller and poorer hospitals, while larger, presumably richer, and older institutions, do not experience any untoward effects. We easily understand the causes producing this result, but in

the face of the statistical fact that according to the federal census of 1904, 1,147 hospitals out of 1,484, more than three-fourths reported fifty beds less as occupied, is it not the duty of administrative bodies to execute laws with reference to these smaller and frequently struggling institutions? As far as our own training school is concerned we found the following effect of the high school requirement. Out of ninety applicants for admission fifty had to be rejected because they were lacking in the high school requirement, representing 55 per cent. of the total figures which possess sufficient eloquence without any comment.

My personal observation of nurses has failed to explain the enthusiasm which is evoked by the high school requirement in some quarters. I have found incorrect spelling and grammatical errors amongst girls who had completed the course in high school. I had a young woman who had not only graduated from high school, but took a course of training for kindergarten work, complain to me that she was suffering from neurology. Not the fault of the individual, but due to the tendency pervading our whole system of education—of crowding too much material within too short a time. A good grammar school enables its graduates to express themselves clearly and correctly in their own language, it teaches them all the arithmetic that is required to make proper solutions and to calculate food percentages. That is all the actual knowledge which the nurse must bring to the training school in order to cope intelligently with the duties of practical and theoretical nursing. But would it not be a small matter to prepare the nurses in a short time in such a manner that they could pass the regents examination equivalent to one year's high school course? Probably not, if the probationers would consent to fit themselves for admission before entering the training school. But do you believe that cramming a certain number of facts into a brain so as to enable its owner to pass an examination would improve the mentality of the nurse, would make her grasp the problems more quickly which will appear in the course of her training? We may gain percentages by mechanically impressing facts upon our minds, but we do not gain knowledge. Nor does it seem feasible to me that a nurse could acquire the necessary proficiency while attempting to concentrate her mind upon the diverse channels into which her attention is riveted through the requirements of our syllabus. I firmly believe, and I am by no means alone in the conviction, that the training in itself if conducted in a good school is by far superior to one year in high school, as to the development of the brain in general, the capacity for observation, thought, and for the ability of expressing and communicating them to others. A course in a business college is accepted as an equivalent, why should a two or three years' course in a

vocation which requires so diversified manifestations of mental activity not possess the same importance in the eyes of our law-givers? In speaking of the two or three years' course I approach a question about which I find myself unable to speak with any authority, as I have been connected with training school work but somewhat over three years. Following the lead of some large hospitals we made the attempt at the Jewish Hospital of Brooklyn to complete the required education within two years. We came to the conclusion that this task could not be undertaken without doing at least temporary harm to the physical equilibrium of our nurses. We are trying now a course embracing two years and a half, which would come fairly near to the three years' course, implying as the latter does the privilege of sending nurses out for private work during the last three months. As our junior class represents the first nurses embarking upon this experiment, I am, as a matter of course, in no position to give an opinion of its value. I am perfectly willing, however, to admit that a shorter course than this inaugurated by us does not give sufficient time for solving the task as imposed by our present syllabus. It would require a good sized volume to analyze this document promulgated yearly in Albany. I shall limit myself to point out some requirements which are not selected in a spirit of bias, but because they concern three fields, the examinations of which bear the poorest results. In anatomy the pupil is expected to familiarize herself in fourteen hours with the following subjects: the whole field of osteology; description of more important muscles with origin and insertion; functions of certain muscles; heart and circulation; arteries and veins with courses and divisions; description of the nervous system; anatomy and functions of the brain and spinal cord; anatomy of the peripheral system; course of nerves; description of the sympathetic system; all abdominal viscera with peritoneum. In addition pleura and lungs. Can you explain to me the manner in which any lecturer, providing that his conception of more important muscles should agree with a view of the examining body, can possibly crowd the whole subject of anatomy into fourteen or twenty or thirty lessons with only such limitations as are set by his discretion?

In materia medica we found the following lessons: Various pharmacological groups with dosage and common preparations. How can I in attempting to teach this important branch form any adequate idea of which and how many groups are meant?

And then, again, dangers and doses of important preparations. Surely every preparation in our materia medica is of importance, otherwise it would not have achieved a position in this domain, and no two physicians would agree as to the greater or lesser importance of all the preparations used in our therapy. So we are

compelled to flounder sadly in the dark in the hope that we might occasionally hit upon preparations which are considered more important by the examining board.

In approaching the subject of dietetics, the step-child of medicine, and the adopted child of the domestic science of nursing, we find such subjects as absorption, assimilation, metabolism, elimination, of waste, all questions which are treated by the most learned physicians with the greatest modesty, the outgrowth of the conviction how great are our limitations in the recognition of biological and bio-chemical processes. And yet the teacher is expected to impart to the nurses an understanding of these questions without finding them equipped with the knowledge of chemistry and physiology, which is so absolutely necessary to acquire only a fairly adequate conception of these wonderful processes. When I find in the syllabus such items as food value of meat, I am ever at a loss to know what animals they are referring to and to what part of the animal. Am I supposed to teach them the food value expressed in calories of every animal and of every part of every animal, or am I to teach them simply that the food value of meat, of fish, of sugar, is high? If I should attempt to teach my classes in the sense of the first assumption I should try to give them something which I do not possess myself. I know of no physician, of no dietician, who would be able to give the greatly varying food values of the different parts of the same animal without referring to text-books. The fallacious value of a general answer such as high or low food values is very obvious from the fact that they vary in the same animal from 500 to 1,500 heat-units. Calculating dietaries is another luxurious item given to the teacher to render his despair of doing justice to the syllabus and the nurses' object. Do you not think that a nurse might be able to arrange a tray very tastefully and practically without knowing the exact number of heat-units which she brings to the patient? Then we find the item, history and growth of the plants from which we derive tea, coffee and cocoa. I plead guilty to never having attempted to include this point in my lectures on dietetics because I indulge in the heretic belief that a fairly intelligent nurse might be able to prepare a cup of tea, coffee or cocoa, without any detriment to the patient's interest, even if she should not be conversant with the history and growth of the plant to which these beverages owe their existence.

In the field of bacteriology the nurse is to be familiarized with such subjects as infectious diseases, immunity, toxæmia, septicæmia, all subjects in the study of which the most eminent medical minds feel that they are, to a great extent, knocking at closed gates. And yet nurses are supposed to grasp these different questions with the only possible result that they memorize definitions to be forgotten, and perhaps gladly

forgotten, as soon as the State examination is passed. These are the two defects about our present syllabus; a scope of subjects that goes far beyond the understanding of the average nurse, even if we should include amongst the requirements graduation from a high school. Secondly, want of precision is the expression of the facts to be taught. As the examining board is inspired by the same sincere interest in the nurses' physical and mental welfare that has induced some of us physicians to devote our attention to these questions it ought not be a difficult task to harmonize the divergent views in the interest of our common goal. The spirit of fairness that pervades, the manner in which the examinations are conducted permits me to indulge in the fulfillment of this hope. The questions addressed to the nurses, are to me an expression of the conviction on the part of the examining board that a great part of the requirements contained in the syllabus is unnecessary to the future nurse. Mistakes have not been prevented by this intention of justice. If nurses are, for instance, requested to name three cholagogue purgatives a satisfactory answer would prove their immense superiority to their teacher. For numerous investigations of this question to the elucidation of which I have contributed my modest mite, have failed to demonstrate the existence of even one drug that will increase the secretion of bile in an irrefutable manner. Should I abjure my conviction to enable our nurses to pass their examination? In diet-cooking I find the task: name three vegetable acids. The three acids which I presume have been meant—malic, citric, and tartaric acid, are called fruit acids in books on food dietetics. The other designation is used in chemistry in contra-distinction to mineral acids. The framing of questions should surely not be of a character to bewilder and mislead the nurse who approaches her examination usually in a more or less marked condition of nervous excitement. Why is stale bread more easily digested than bread freshly baked? is another question. Unfortunately I teach my nurses that bread that is properly baked, even if fresh, is assimilated just as well and perhaps even better than stale bread. The presumption upon which this question rests is one of those many sad fallacies that are copied with the greatest conscientiousness from one text-book into the other without any attempt to test their value by means of exact scientific methods. If I were inspired by a mere desire to criticize I could talk for hours on the inappropriate character and inexact wording of some questions which are addressed year after year. But I believe that I have suggested enough to you to emphasize the necessity of reforms in different directions. The reform must include the very important question of rating, the standing in examinations. I find nine theoretical subjects which I presume receive the same rating that is

given to practical nursing. If my assumption be correct then genito-urinary nursing occupies the same position in the outcome of the examination as is bestowed upon practical nursing.

Bacteriology is considered equal to the actual care of the sick. You will probably all agree with me that such a state of affairs must necessarily appear incomprehensible to the mind of a physician. I myself, consider practical nursing of such eminent importance that I would permit it to take half of the whole rating, leaving to all the other branches together, the remaining 50 per cent. For instance, if a nurse passes in practical nursing with 90 per cent., while only attaining in all the other topics an average rate of 50 per cent., I would add 90 to 50, divide by 2 and obtaining 70, permit that nurse to acquire the privilege of registering. All these reforms will not become feasible until we agree to reform the system from within. As long as the spirit pervading the theory of nurses' education yields to the pathetic fallacy that we are able to impart knowledge quickly and to develop minds twice as rapidly as was done in former times because we have developed manufacturing interests and railroads in an astonishingly brief time, just as long shall we be unable to inaugurate real and permanent reforms. Cramming knowledge is by no means identical with imparting knowledge, and the effects of trying to teach under pressure find a sad illustration in the experience of Miss A. W. Goodrich. This great authority in the field of nursing in starting a post-graduate course discovered that it was absolutely necessary to give these pupils a great deal of theoretical instruction. "It is the consensus of opinion in regard to the different nurses who have come to the school that their knowledge of *materia medica*, for instance, was so limited that until we had given them some preliminary instruction we could not put them in the ward to give out drugs." Everything, experience, common sense, future usefulness, sacrificed to the idol of the so-called higher standing. And why must we have that elevation? Because nursing has branched out into a great many new activities. Hospital work, diet kitchen supervision, the duties of a tuberculosis nurse, the position of a school nurse, the engagement in missionary work, the employment in settlements—they all require an education that reaches beyond the course and the preparatory knowledge that used to be given to nurses. Very true! And so do the neurologist, the ophthalmologist, and all the other specialists require a special education that is entirely beyond the scope of the present course in medicine. But would any of you favor an enlargement of medical studies to a point at which the graduate could practice every specialty in medicine after leaving his school? Impossible, of course. And just as the medical college limits itself to give the student a sound foundation on which the superstruc-

ture of his specialty will rest with security, so the training school will have to abandon its impossible ambitions. It will have to limit itself to preparing pupils for efficient practical work. They will encounter no difficulty in finding opportunities for development in special lines if driven to do so by their inclination or by given opportunities. To arrive at this end the practicing physician will have to make his influence felt in the legislative and administrative measures directed to the problem of nurses' education. Strange indeed! In all meetings of nurses' associations, supervisors' associations, hospital superintendents' associations, a good deal of eloquence is expended in the interest of the nurse, the training school and of the hospital over-shadowing completely the practicing physician who gives bread and butter to the majority of all graduate nurses. It is therefore not surprising that he has found no opportunity to have his voice heard in the board that issues the syllabus and frames the questions for examinations. In fact, this board consists only of nurses, but I believe it will only be necessary to call the attention of the State Board of Regents to the monstrous proposition that no other interest is represented in that important body in order to have the defect remedied. I believe that the physicians in the State should have one representative on this board. In addition to that the board should consist of a representative of the training schools, of the hospitals, of the teaching bodies of the training schools, so that all interests might be properly protected in the very necessary changes that will have to be wrought in the system of educating trained and registered nurses.

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### DISCUSSION

DR. DAVID R. BOWEN, Rome: Some ten or fifteen years ago, when I was engaged entirely in country practice, and had absolutely no help from trained nurses, I began to dream of the time when I might do something to mitigate the crying need for nurses for the rural and wage-earning population. I do not think it is necessary in discussing these papers to mention such need, because we are all agreed as to its necessity, and the question comes up, can we supply that need with justice to the nurse and with justice to the patient in a shorter course than has been given? I think we can. You take the average wage-earning girl who can read and write and spell, and who understands arithmetic, I think it is possible to train that girl in one year so that she will be worth \$10 or \$12 a week to those families. If you do that and she gets that money it is no injustice to the girl that in one year you raise her earning ability to twice what it was. Certainly in one year, with proper training, you can raise this girl to a better standard than we get from the practical nurse who has

picked up her training absolutely by herself and empirically. Can this be done without prejudicing hospital patients in which these training schools are situated? The school with which I am connected has been running two years. In that time we have done 1,000 operations, 40 per cent. of which were laparotomies and about 60 per cent. of which can be classed as major operations. There have been no cases of sepsis more than stitch abscesses. There have been no more of these than under any other system of nursing. It entails upon the physicians much more care, perhaps, and decidedly more anxiety and more responsibility than if they had the support of nurses of longer training. Now, the point: there is a need for this class of nurses, whether we will or not supply them in one way or another. Shall we take progressive nurses of this class and by our laws bind them simply to the results of their one year's training, or shall we make provision for the best of these to rise in the rank of specialism and gain the reward which they justly earn? That is the point. The registered nurse, of course, should be capable of taking the highest responsibility, but just because this nurse began five or six or eight years ago in a manner which the State Nurses' Association may consider unorthodox, is no reason why they should be forever prevented from rising to the ranks which they may earn, or deserve.

DR. CHARLES R. BARBER, Rochester: These papers are timely and to the point. There is a crying need for reformation along these lines. So far as my observation goes, Dr. Bowen voices this need among the lower classes. I think it is safe to say that not 20 per cent. of the population of our cities are able to pay the prices charged for trained nursing. I have no doubt that Dr. Stover has looked carefully into this question, but it seems to me that not more than 10 per cent. of our population employ the trained nurse, while the other 90 per cent. are being cared for by the so-called practical nurse, or are going to the hospitals. Be that as it may, there is certainly a large general class of our people that calls for that class of nurses, who are capable of doing nursing in a practical way, and at a less remuneration. I can hardly see how it would be possible to undertake to train two classes or standards of nurses in the same hospital. I am afraid that such a system would not work out well, but it would seem to me that certain hospitals could be set aside for this particular purpose.

There is one phase of this question which the doctor did not bring out, and that is the question of training nurses. One object which a hospital has in training nurses is to train them and fit them for service and for the compensatory obligations on the part of the nurses themselves; that is, to furnish something in



return for the education received. The hospital expects something in the way of special nursing for the education received, and that is one reason for the longer course. Of course it prepares the nurse better to have the care of special cases, and on the other hand, it brings compensatory returns to the hospital for the training received.

During the past three years I have been engaged in organizing a registered training class in a private hospital. Without assumption on my part, I think I have gained some knowledge of the defects in our present training regulations, and of some of the needs which should be provided for in order that our schools may turn out nurses competent to do the work, and at the same time provide properly for the need of suffering humanity.

I am very glad that this question has been brought before the Society, and I think it ought to be thoroughly thrashed out. The nurses' associations have altogether too much to do with the training of nurses, over whom, after they leave their training, the doctor has complete control.

DR. POTTER: The crying need or demand for nurses at moderate prices could be overcome if we had some legislation whereby we could draw upon the institution for district nurses. Let us make it compulsory on the training schools to furnish physicians, who need help in that line, a certain number of nurses before they graduate. It will give better training in home work. The training school can be paid money. If the nurse gets \$10 or \$12 a week part of that money, or all of it, can be turned into the class fund, and it will help the hospital. It will help the physicians and poor people, and if we had some legislation in that direction it would help the matter a great deal.

DR. J. P. CREVELING, Auburn: To my mind the worst feature of the three years' course is this—that it is driving the better class of girls out of nursing. Take a bright girl with a good education, a girl of good common sense, and very few of them of that class will take a three years' course when they understand that after spending that length of time in studying nursing ten years will probably mean about the time of their service, and during that ten years half of the time, or nearly so, they will be idle. They will have saved very little at the end of that time, and most of them will seek some other business. There are too many avenues open for girls in which they can make more money in doing less work and enjoy themselves better. They therefore will not spend the time in training.

MR. A. S. DOWNING, State Education Department, Albany: As a member of the State Education Department I am particularly interested in the two papers that have been presented this

morning, inasmuch as we are held responsible for some of the evils which you worthy gentlemen labor under. This is a timely discussion in order that we may take up the subject of nurse training. It has only been a year since it became my official duty to study the questions of nurse training and to deal with the problems that are involved. I am in a sympathetic frame of mind with reference to the views expressed by the gentlemen who have spoken that the time is ripe in this State when we should provide by statute for a class of nurses that shall be known as domestic nurses or practical nurses, or by some other name that this medical society shall agree upon, which is not objectionable to those of extra training, who shall go to the middle and poorer classes as attendants working under the immediate direction of the physician, and who are competent to perform the ordinary duties required by the physician in the care of these patients, and at a price which people of moderate circumstances can afford to pay and not at the extreme price of \$25 or \$35 per week for services rendered. The whole question, it seems to me, is one which shall protect the medical profession and the people at large, and protect at the same time the registered nurse. The time required in acquiring a knowledge of nursing is three years, but when you come to sum it all up it means that about two years of work is done in three years. I am satisfied that three years is a pretty long course for a nurse. It is a pretty long course for a woman to undertake to become a trained nurse, and go out and be subject afterward to the control of the physician. I have no patience with a nurse who assumes to know more than a physician in treating a case. The physician is ultimately responsible to the family and patient for services rendered, and not the nurse. If you register a certain class of nurses let it be after three years of training. In the meantime the people and physicians may expect young women with a year's training to be competent to go into a sick room and for a certain period of time take care of the patient. Let me cite an extreme case. A person was paralyzed on one side, the family wanted a nurse. This family could not pay \$25 a week, but they could afford to pay \$10 a week. This was going to be for a period of several months. They needed an attendant, a person who understood the care of the sick room, and who could move the patient without causing suffering, and when the physician was not present during the day to take care of the patient. You do not need a registered nurse in cases of that kind. You can have a registered nurse if you can afford to pay for it. In a year's time you can train a nurse that will meet these requirements.

This law of ours is defective in several particulars. It should be amended and this body should take action with that end in view. The law should be amended so as to protect the terms,

"registered," "certified," and "graduate nurse." There are three or four schools in this State turning out nurses after an insignificant course of lectures of three or four months. There is one school in New York City which gives a nurse a certificate and she goes out as a certified nurse. It is a crime against the nurse, the people and profession to have certified nurses. She may work for \$10 a week or \$15 a week. She is deceiving the people when they send for a nurse and get a certified one. The people do not distinguish between a certified and registered nurse. There should be something in the law to protect the certified, registered and graduate nurse. There should be a shorter course under the same jurisdiction as that for the registered nurse. There should be an examination conducted by the Board of Regents. These examinations should be conducted fairly, and I believe they are. This question of nurse training is a vital and burning question. The law should be amended so as to protect the words, "registered," "certified," and "graduate," and the word nurse. It should provide for a school which can be registered by the Board of Regents as a school for trained attendants and let this body, as has been suggested in the resolution offered by Dr. Stover, appoint a committee to confer with the Board of Regents and other authorities, to see if it is not possible in the hospitals to maintain two courses. There are a great many hospitals opposed to this. I think it is possible to work out a plan by which hospitals maintaining training schools of two or three years may have a shorter course for women who can go in for a year and who at the end of that time shall be certificated for the districts in which they live.

Dr. MERZBACH (closing the discussion on his part): I hope all these questions that have been brought up to-day will be considered by the committee deliberately, and perhaps they will do so better than we have done it here. I do not think, Mr. Chairman, I have any further remarks to make.

Dr. STOVER (closing the discussion): I do not want to prolong this discussion, but I wish to acknowledge my appreciation of the courtesy which has been extended to me by Mr. Downing and other representatives of the State Education Department. One thing I have come up against is I have been referred to the nurses' training school or representative, or inspector, and the information which I have often wanted I got from the nurses' training school.

## LEGISLATIVE NOTES.

### BILLS INTRODUCED IN THE LEGISLATURE

April 22 to May 23, 1910.

#### IN SENATE.

An Act to amend section 310 of the Public Health Law, relative to the vaccination of school children, by permitting unvaccinated children to attend school in certain cases. By Mr. Travis. To Public Health

Committee. (Same as A. 1472.) Printed No. 1121. Int. 945.

An Act to amend chapter 26, Laws of 1910, by providing that the name of the Buffalo hospital for the care and treatment of persons affected with incipient tuberculosis shall be the J. N. Adam Memorial Hospital. By Mr. Davis. To Cities Committee. (Same as A. 1529.) A. 1529 substituted. Printed No. 1134. Int. 958.

An Act for the retirement of employees of the New York State hospitals for the insane, by providing for permanent fund for the payment of annuities. By Mr. Davis. To Finance Committee. (Same as A. 1500.) Passed in Assembly. Record No. 237. Printed Nos. 1135, 1430. Int. 959.

An Act to amend section 106 of the Agricultural Law, relative to the shipping, slaughtering and sale of veal for food by providing penalties and fines for the violation of the provisions of said section. By Mr. Cobb. To Agriculture Committee. (Same as A. 1542.) Passed in Assembly. Record No. 311. To Agriculture Committee. Printed No. 1194. Int. 991.

An Act to amend section 96 of the Agricultural Law, relative to enforcement of rabies quarantine. By Mr. Platt. To Agriculture Committee. (Same as A. 1559.) Printed No. 1198. Int. 996.

An Act to amend section 4 of the Public Health Law, relative to the powers and duties of the Commissioner of Health, by providing that he shall have power to enter and examine all hotels, restaurants and public boarding houses where ten or more persons are accommodated. By Mr. Meade. To Public Health Committee. (Same as A. 1678.) Printed No. 1199. Int. 997.

An Act in relation to the discontinuance of illegal sewers in the Borough of Brooklyn, City of New York, with sewer map "S" Borough of Brooklyn, as now constituted. By Mr. Alt. To Cities Committee. (Same as A. 1600.) Printed No. 1237. Int. 1012.

An Act to amend sections 12 and 40 of the Insanity Law, relative to State hospital districts, by including the Mohansic State Hospital. By Mr. Davis. To Judiciary Committee. (Same as A. 1588.) Passed in Assembly. Record No. 274. Printed No. 1247. Int. 1022.

An Act to amend section 19 of the Insanity Law, relative to the qualifications of the members of the Board of Alienists. By Mr. Davis. To Judiciary Committee. (Same as A. 1589.) Printed Nos. 1248, 1497. Int. 1023.

An Act to legalize, ratify and confirm the acts and proceedings of the village of Monticello, relative to the establishment of a sewer system and sewage disposal plant in said village, and the issuance and sale of village bonds therefor. By Mr. Rose. To Judiciary Committee. (Same as A. 1599.) Printed No. 1269. Int. 1040.

An Act to amend section 173 of the Public Health Law, relative to the construction of the provisions of such law regarding the practice of medicine, by providing that the section shall not apply to a certain religious tenet. By Mr. Witter. To Public Health Committee. (Same as A. 1617.) Amended. Recommended to Judiciary Committee. Printed Nos. 1270, 1552. Int. 1041.

An Act to permit the city of Poughkeepsie to establish, equip and maintain a tuberculosis hospital and to permit the county of Dutchess to make appropriations therefor. By Mr. Schlosser. To Cities Committee. (Same as A. 1665.) Printed No. 1378. Int. 1080.

An Act to amend sections 113 and 114 of the Prison Law, relative to physician and assistants at Clinton Prison. By Mr. Emerson. To Penal Institutions Committee. Printed No. 1450. Int. 1121.

An Act to amend the Agricultural Law by adding three new sections, 109, 110 and 111, defining the term "abattoirs," providing for a license fee of \$10

- for the operation of abattoirs, providing for their examination, and appropriating \$10,000 for the enforcement of this act. By Mr. Allen. To Finance Committee. (Same as A. 1709.) Printed No. 1476. Int. 1124.
- An Act to amend section 1570 of the Greater New York Charter, providing that the coroners in the Borough of the Bronx shall devote their entire time to their duties as coroner. By Mr. McManus. To third reading when introduced. To Cities Committee. Printed No. 1531. Int. 1139.
- An Act to establish a hospital commission for the city of Yonkers, and to provide for the care of persons in said city suffering from tuberculosis in advanced stages. By Mr. Wainwright. To Cities Committee. (Same as A. 1722.) Printed No. 1547. Int. 1141.

IN ASSEMBLY.

- An Act for the retirement of employees of the New York State Hospitals for the insane, by providing for a permanent fund for the payment of annuities. By Mr. Merritt. To Ways and Means Committee. (Same as S. 959.) Printed Nos. 2085, 2546. Int. 1500.
- An Act to amend article 8 of the Agricultural Law, and sections 40, 41, 42, 43, 44, 45 and 50 of the Public Health Law, relative to the adulteration or misbranding of food and food products, and to repeal certain provisions of law relative to the same. By Mr. Boshart. To Agriculture Committee. (Same as S. 939.) Printed Nos. 2089, 2433. Int. 1504.
- An Act to amend chapter 26, Laws of 1910, by providing that the name of the Buffalo hospital for the care and treatment of persons affected with incipient tuberculosis shall be the J. N. Adam Memorial Hospital. By Mr. MacGregor. To Judiciary Committee. (Same as S. 958.) Printed No. 2123. Int. 1529. Passed.
- An Act to amend section 96 of the Agricultural Law, relative to enforcement of rabies quarantine. By Mr. Boshart. To Agriculture Committee. (Same as S. 996.) Printed Nos. 2192, 2432. Int. 1559.
- An Act to amend sections 12 and 40 of the Insanity Law, relative to State hospital districts, by including the Mohansic State Hospital. By Mr. J. S. Phillips. To Judiciary Committee. (Same as S. 1022.) Passed. Vote reconsidered. Printed Nos. 2257, 2534. Int. 1588.
- An Act to amend section 19 of the Insanity Law, relative to the qualifications of the members of the Board of Alienists. By Mr. J. S. Phillips. To Judiciary Committee. (Same as S. 1023.) Passed in Senate. Record No. 722. Substituted for S. 1023 on third reading; passed. Printed Nos. 2258, 2536. Int. 1589.
- An Act relative to the discontinuance of illegal sewers in the Borough of Brooklyn, City of New York, with sewer map "S," Borough of Brooklyn, as now constituted. By Mr. Lachman. To Cities Committee. (Same as S. 1012.) Printed No. 2273. Int. 1600.
- An Act to amend section 173 of the Public Health Law, relative to the construction of the provisions of such law regarding the practice of medicine, by providing that the section shall not apply to a certain religious tenet. By Mr. Wilkie. To Public Health Committee. (Same as S. 1041.) Passed in Senate. Record No. 690. To Public Health Committee. Printed No. 2290. Int. 1617.
- An Act to permit the city of Poughkeepsie to establish, equip and maintain a tuberculosis hospital, and to permit the county of Dutchess to make appropriations therefor. By Mr. Smith. To Internal Affairs Committee. (Same as S. 1080.) Passed in Senate. Record No. 702. Substituted for S. 1080. On third reading Passed. Printed No. 2451. Int. 1665.
- An Act to amend section 4 of the Public Health Law, relative to the powers and duties of commissioner. By Mr. McInerney. To Public Health Committee. (Same as S. 997.) Printed No. 2481. Int. 1678.

- An Act to amend the State Charities Law by adding a new section 71, relative to the powers of the board of managers of the Syracuse State Institution for Feeble-Minded Children. By Mr. Walters. To Judiciary Committee. Passed in Senate. Record No. 724. To Finance Committee. Printed No. 2551. Int. 1711.
- An Act to establish a hospital commission for the city of Yonkers, and to provide for the care of persons in said city suffering from tuberculosis in advanced stages. By Mr. Haines. To Cities Committee. (Same as S. 1141.) Printed No. 2587. Int. 1722.

MEDICAL SOCIETY OF THE STATE OF  
NEW YORK.

PRIZE ESSAYS.

The attention of the members is called to the fact that there are two prize funds in the society known as the Merritt H. Cash Prize Fund, and the Lucien Howe Prize Fund. These have not been awarded during the past few years, because there have been no essays presented.

Notice is hereby given that the Merritt H. Cash prize of \$100 will be awarded for the year 1910, on any essay submitted which is considered worthy by the committee. The subject of the essays may be taken from any of the contributing parts of medical science and practice, and must be original so far as to constitute an advance in our knowledge. Candidates for the prize must be members of the Medical Society of the State of New York.

The Lucien Howe prize of \$100 will also be awarded for the year 1910 for the best original contribution to our knowledge of some branch of surgery, preferably of ophthalmology. The author or discoverer need not be a member of the Medical Society of the State of New York, but the communications shall be made first through its Committee on Prize Essays, and shall remain the property of that society to be made public as it shall direct. All communications shall be typewritten or printed, and the only means of identification of the authors shall be a motto or other device.

These essays must be in the hands of Dr. A. Jacobi, Chairman of the Committee on Prize Essays, 19 East 47th Street, New York City, before December 31, 1910.

WISNER R. TOWNSEND, M.D., Secretary.

MEETING OF THE COUNCIL.

A regular meeting of the Council of the Medical Society of the State of New York was held at 17 West 43d Street, Friday, May 6, 1910. Dr. Charles Jewett, President in the chair. Dr. Wisner R. Townsend, Secretary.

There were present Drs. Charles Jewett, Charles W. M. Brown, J. W. Grosvenor, G. P. Jessup, Dayton L. Kathan, Alexander Lambert, Andrew MacFarlane, T. D. Mills, Edward Munson, William W. Skinner, Charles Stover, Wisner R. Townsend, and Frank Van Fleet.

A telegram was presented from Dr. Reese regretting his inability to be present.

The letter of resignation of Dr. Halsted was presented, thus explaining his absence.

A letter was presented from Dr. Neuman stating that he was unavoidably detained.

Moved, seconded and carried that as the minutes of the last meeting had been printed, that they be approved as printed without being read.

The resignation of Dr. Halsted from the Committee on Public Health was accepted.

A request was presented from the Board of Censors of the Onondaga County Medical Society asking for financial assistance and aid in carrying to a higher court the appeal of Osborne vs. Kane and Coates. After full discussion it was decided that the Council of the State Society did not feel justified in granting the request.

The Secretary announced the deaths since the last meeting of Dr. J. W. Eddy of Oswego, President of the Fifth District Branch, and Dr. James D. Spencer of Watertown, an ex-president of the State Society. On motion duly seconded, the chair was authorized to appoint a committee to draw up suitable resolutions.

The chair appointed Dr. Elsner of Syracuse, Dr. Kidder of Oswego, and Dr. Low of Pulaski, as committee on memorial for the late Dr. Eddy.

The Treasurer reports the bank balance at \$5,802.73.

The Chairman of the Committee on Scientific Work sent a report that he was not prepared to present a list of names for his committee.

Dr. Frank Van Fleet, Chairman of the Committee on Legislation reported that he desired the election of the following members of his committee. Drs. H. L. K. Shaw of Albany, and Grover Wende of Buffalo, and on motion duly seconded they were elected.

Dr. Van Fleet spoke on the so-called anti-vaccination bill, and upon motion duly seconded the following resolution was adopted:

*Resolved*, That the Council of the Medical Society of the State of New York urges the Committee on Legislation to use every possible means to prevent the enactment of Senate bill, No. 363. Int. 356, as it would be a serious menace to the protection of the health of the State.

The chairman also referred to the desirability that members of county societies and others should not introduce bills affecting medical or sanitary legislation unless the same had been duly considered by the proper State authorities.

It was moved, seconded and carried that no county society or member thereof should have introduced into the Legislature any bill affecting sanitary or medical questions until the same has been submitted to the House of Delegates of the Medical Society of the State of New York or between meetings of the House of Delegates to the Council or the Committee on Legislation of the State Society.

It was moved, seconded and carried that Dr. Halsted of Syracuse, be elected President of the Fifth District Branch, and Dr. Todt of Oswego, Vice-President.

It was moved, seconded and carried that Dr. J. M. Van Cott be elected Chairman of the Committee on Public Health. Dr. Van Cott named as members of his committee Drs. Thomas Darlington of New York, and Allen A. Jones of Buffalo, and they were duly elected.

The Chairman of the Committee on Arrangements sent a report asking that the following be appointed as members of his committee: Arthur G. Root, Albany; H. L. K. Shaw, Albany; H. C. Gordinier, Troy; E. A. Vander Veer, Albany and LaS. Archambault, Albany. On motion duly seconded they were elected.

The communication of Dr. Chase referred to the Council from the Society was discussed and the following resolution passed:

*Resolved*, That the communication of Dr. Chase in regard to the appointment of a committee to study uterine cancer, etc., be laid on the table, because it

was stated that similar work was being done by other bodies in a more efficient manner than the State Society could do it.

It was moved, seconded and carried that the following resolutions be adopted:

*Resolved*, That on and after July 1, 1910, no member of the Medical Society of the State of New York shall receive the Directory, the NEW YORK STATE JOURNAL OF MEDICINE, nor be entitled to malpractice defence until his County and State assessment has been paid.

*Resolved*, That in order to encourage increase in membership for the year 1910, all members who are elected between October 1, 1910 and December 31, 1910, and who shall pay during that period their State assessment, may have the same credited to 1911, provided that they request it. All whose assessments are so credited shall be entitled to malpractice defence for 1910, but shall not be entitled to receive the Directory or the Journal for 1910. State assessments so credited shall be immediately forwarded by the County Treasurers to the State Treasurer.

It was moved, seconded and carried that the following resolutions be adopted:

WHEREAS, It has been publicly announced that the New York Anti-vivisection Society proposes to hold an exhibit at the forthcoming Actors' Fund Fair, and to carry on an active propaganda there in favor of the unwise principles of the Society;

*Resolved*, That the Council of the Medical Society of the State of New York now in session, representing the physicians of the State, hereby protests against the holding of the proposed exhibit, and requests the authorities in charge of the Actors' Fund Fair not to allow their worthy cause to be thus used as a medium for misrepresentation of the medical profession.

The motion to adjourn was duly seconded and carried.

WISNER R. TOWNSEND,  
Secretary.

#### MEETING OF THE CENSORS.

A meeting of the Board of Censors of the Medical Society of the State of New York was held at the offices of the Society, 17 West 43d Street, May 6, 1910, at 2 P.M.

There were present: Drs. Charles Jewett, G. P. Jessup, D. L. Kathan, A. MacFarlane, T. D. Mills, E. Munson, W. W. Skinner and Wisner R. Townsend.

The President of the Society, Dr. Charles Jewett presided and announced that a quorum was present.

He also announced that Dr. W. R. Townsend would be present but would not vote on the charges preferred against the Medical Society of the County of New York by reason of his being a member of that organization.

Mr. James Taylor Lewis, counsel of the State Society conducted the hearing upon the charges brought by Dr. F. R. Sturgis of New York against the Medical Society of the County of New York.

"I herewith accuse the Medical Society of the County of New York of certain acts, which in my opinion, render the said Medical Society an unfit and improper representative of the medical profession of the City and County of New York, and pray that the House of Delegates will appoint some other organization to represent the profession of the said County of New York in the Medical Society of the State of New York.

"I base this accusation upon the following charges:

"1. That the Medical Society of the County of New York during a portion of the years 1906 and 1907, to all intents and purposes accused a reputable member of said County Society, Dr. Charles James Mooney, of being concerned in and privy to an abortion, and failed to safeguard and protect the said Dr. Mooney's interests and professional reputation, as the County Society should have done.

"2. That in 1908 the said County Society, at the instigation and under the guidance of its Comitia Minora, did illegally secure the seating of two members of the Board of Censors of said Comitia and

continued them in the year 1909 in their illegal possession of these positions. And

"3. That at the last annual election and subsequently thereto the said Society, through its Comitia Minora, did improperly and illegally appoint four delegates to the Medical Society of the State of New York.

(Signed) F. R. STURGIS."

The Medical Society of the County of New York was represented by Mr. Vandiver, its attorney, and Dr. Sturgis appeared personally for the complainant.

The following witnesses were examined by and on behalf of the complainant—Dr. Mooney and Dr. Bruyere.

Several exhibits were submitted in addition to the testimony of witnesses. The only witness called on behalf of the Medical Society of the County of New York was the Secretary, Dr. John Van Doren Young.

The Censors found that charges Nos. 1 and 2 should be dismissed for failure of proof. Charge 3 was sustained, but the Censors declined to recommend the dismissal of the County Society of New York as the representative of New York County in the State Society.

*Resolved*, That the Censors find from their investigation of these charges, that there is nothing in the evidence which can be construed as derogatory of Dr. Mooney's character or professional reputation.

The meeting was adjourned *sine die*.

CHAS. JEWETT,  
President.  
WISNER R. TOWNSEND,  
Secretary.

### NOTICES.

DEAR SIR: The New York Academy of Medicine is very desirous of adding to its library the reports of the committees that have been appointed from time to time to investigate questions of public health, to the end that the results of their labors may be available to future workers. Harbor pollution, the alcohol question, the prevention of tuberculosis, the prevention of occupational diseases, the sanitation of tenements, the sanitation of workshops, the effect of prolonged hours of labor, the social evil, and congestion of population are some of the topics about which information is desired. The Academy is not starting any investigation of its own; it is only trying to get the reports of past and present investigations undertaken by others. Some of these reports are in print, and they are readily accessible, but others are to be found only after long search in the archives of the organizations which produced them, and their contents and even their existence are known to few beside their authors. The Academy of Medicine will be very glad to receive copies of reports of this nature, and also any information concerning the appointment, the organization, and the work of committees or commissions engaged in this research. Any communication sent to the undersigned will be gratefully received and duly acknowledged.

Respectfully yours,

DR. CHARLES MALLORY WILLIAMS,  
Per J. S. B.,  
Executive Librarian.

The New York Academy of Medicine,  
17 West 43d Street.

### COUNTY SOCIETIES.

#### RICHMOND COUNTY MEDICAL SOCIETY.

REGULAR MEETING, STATEN ISLAND ACADEMY, MAY 11, 1910.

"Practical Suggestions Concerning Advanced Cancer of Abdomen and Pelvis," W. S. Bainbridge, N. Y.

#### MEDICAL SOCIETY OF THE COUNTY OF OSWEGO.

SEMI-ANNUAL MEETING, FULTON, MAY 17, 1910.

Vice-President's Address—"Pleurisy," E. W. Crispell, Williamstown.

"Spinal Reflexes," W. H. Kidder, Oswego.

"Ear-Ache," C. A. Sheridan, Oswego.

"Fresh Air in Surgery," T. P. Scully, Rome.

"Some Surgical Cases," F. E. Fox, Fulton.

Subject for General Discussion—"Milk." Opened by E. J. Cusack, President of the Society.

#### MEDICAL SOCIETY OF THE COUNTY OF ALLEGANY.

REGULAR MEETING AT ANDOVER, APRIL 14, 1910.

Resolutions were passed favoring the bill to amend the Insanity Law, so as to give the health officer the control and care of the insane during commitment, and also in favor of a National Board of Health, and opposing the bill now in Congress entitled "A Bill to Stop the Traffic in Habit Forming Drugs," which resolutions were to be sent to the representatives in Albany and Washington.

#### SCIENTIFIC SESSION.

"Infant Feeding Both Summer and Winter: How to Feed the Innocents," C. W. O'Donnell, Andover.

"Modern Treatment of Acute Peritoneal Infections," H. P. Jack, Canisteo.

Discussion of Fee Bill.

#### SUFFOLK COUNTY MEDICAL SOCIETY.

SEMI-ANNUAL MEETING, BAY SHORE, N. Y., APRIL 28, 1910.

The Society voted to endorse the Owen Bill now before the United States Senate, relating to making a National Department of Health, on condition that the State Society would also endorse it.

#### SCIENTIFIC SESSION.

"The Wasserman Reaction," J. E. Wiseman, Kings Park.

Discussion by Hideyo Noguchi, Rockefeller Institute; Victor C. Pedersen, New York; John W. Moore, Central Islip; A. J. Rosanoff, Kings Park.

"Treatment of Scarlet Fever, Measles and Diphtheria at the Willard Park Hospital," S. R. Leahy, Kings Park.

"Feeding, Care and Treatment of the Child in its First Year," N. S. Wadhams, Westhampton Beach.

Discussion by W. H. Ross, Sayville; A. E. Payne, Riverhead.

"Occipito-posterior Presentation," E. K. Morton, Mattituck.

Discussion by C. E. Wells, Sag Harbor; A. H. Terry, Patchogue; John Benjamin, Riverhead; J. L. Halsey, Islip.

#### MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

ANNUAL MEETING AT ALBANY, MAY 11, 1910.

The following officers were elected:

President, John H. Gutmann, Albany; Vice-President, Christian G. Hacker, Albany; Secretary, Erastus Corning, Albany; Treasurer, George W. Papen, Jr., Albany; Censors, T. W. Jenkins, A. Mac Farlane, F. L. Classen, J. H. Mitchell, J. Archibold.

#### SCIENTIFIC SESSION.

President's Address, "The Functions of a Medical Society," A. Mac Farlane, Albany.

ANNUAL MEETING, BATH, N. Y., MAY 10, 1910.

SCIENTIFIC SESSION.

- President's Address, "Acute Poliomyelitis," D. P. Mathewson, Bath.  
 "Modern Treatment of Diffused Peritonitis," H. P. Jack, Canisteo.  
 "Injuries of the Eyeball," L. W. Jones, Rochester.  
 "Biers Hyperæmia," R. G. Loop, Elmira.  
 "Report of a Case of Lympho-Sarcoma of the Mediastænum," L. H. Gaus, Corning.  
 "Brain Tumors," with specimen, A. W. Booth, Elmira.  
 "Brain Surgery," E. R. McGuire, Buffalo.  
 "Prognosis in Pneumonia," DeL. Rochester, Buffalo.

MEDICAL SOCIETY OF THE COUNTY OF  
WESTCHESTER.

REGULAR MEETING AT WHITE PLAINS, N. Y., MAY 17, 1910.

A Milk Commission was appointed by the Society for certification of milk to be sold in the county. Six new members were elected.

SCIENTIFIC SESSION.

- "Certification of Milk," H. L. Coit, Newark, N. J.  
 "Modification of Milk," H. D. Chapin, N. Y. City.  
 "Treatment of Summer Diarrhœa," C. G. Kerley, N. Y. City.

MEDICAL SOCIETY OF THE COUNTY OF  
WASHINGTON.

ANNUAL MEETING AT HUDSON FALLS, MAY 7, 1910.

Meeting called to order by the President at 10.30 A. M.

Minutes of last meeting read and approved.  
 Report of the Comitæ Minora meeting held March 1st was read and approved.

The following officers were elected:

President, George D. Wilde, Fort Edward; Vice-President, D. C. McKenzie, Granville; Secretary, S. J. Banker, Fort Edward; Treasurer, R. C. Paris, Hudson Falls; Censors, W. B. Melick, J. S. Guinan and C. W. Sumner.

Committee on Legislation, J. Millington, R. C. Davies and G. M. Casey.

Committee on Public Health, R. A. Heenan, S. A. Reed and O. J. Fryer.

Dr. Cuthbert presented the following resolution:

That the date of the annual meeting be changed to the first Tuesday in October, and the semi-annual meeting to the second Tuesday in May, which was laid over until the next annual meeting.

SCIENTIFIC SESSION.

- "Case of Extensive Burns," "Case of Multiple Neuritis," R. C. Paris, Sandy Hill.  
 "Case of Mastoiditis, with Complications," G. M. Casey, Sandy Hill.

MEDICAL SOCIETY OF THE COUNTY OF  
WESTCHESTER.

REGULAR MEETING AT WHITE PLAINS, MAY 17, 1910.

The minutes of the previous meeting and of the Comitæ Minora were read and approved.

The President appointed the following committees: Public Lecture Committee, A. G. Bugbee, F. B. Littlewood and F. M. Myers.

Joint Committee with Pharmaceutical Society, T. H. Kelly, A. E. Chase and J. N. Mentin.

Jacobi Celebration, R. T. Howe, David John and G. A. Peck.

A letter from Dr. Denison, Secretary of the First District Branch was read, stating that there was a misunderstanding of the By-Laws in the County Societies regarding delegates to the First District Branch. The By-Laws were changed October 21, 1908, to make the meeting an open one, thereby eliminating the delegate feature.

The report of the Jacobi Celebration Committee was read and accepted with thanks, and the committee discharged.

A letter from John Bonner regarding illegal practitioners was referred to Comitæ Minora.

A letter from the Willow Brook Dairy Company requesting a certification of their milk was read. Dr. Shipman moved that a committee of five be appointed by the Chair to act as a Milk Commission and to represent the Society as such, with full power to certify milk. Motion was amended that the committee report to Society before certifying any milk. Motion carried to lay the above matter on the table until after reading of papers.

A letter was read from Attorney C. H. Young, of New Rochelle, asking co-operation in opposing the application of the Metropolitan Life Insurance Company to establish a tuberculosis camp or hospital in the town of Somers, Westchester County. Moved and carried that this letter be referred to Committee on Public Health, with instruction to oppose the granting of this application.

SCIENTIFIC SESSION.

- "The Certification of Milk," Dr. Coit, Newark, N. J.  
 "The Modification of Milk," Dr. Chapin, New York City.

"Treatment of Summer Diarrhœa in Children," Dr. Kerley, New York City.

The Society extended a hearty vote of thanks to Drs. Coit, Chapin and Kerley for their very instructive and interesting papers.

The Society then took up the motion for a Milk Commission.

Amendment was made that the Commission be increased to eight members. The amendment requiring the Commission to report to the Society before certifying milk was withdrawn. The original motion and amendment was carried.

MEDICAL SOCIETY OF THE COUNTY OF  
ALLEGANY.

SPECIAL MEETING AT BELMONT, MAY 19, 1910.

The District Attorney reported the conviction and finally driving from the county of the so-called Chryso-path of Wellsville.

SCIENTIFIC SESSION.

- Discussion and adoption of Fee Bill.  
 "Prosecutions for Illegal Practice of Medicine," Joseph Rice, Esq., District Attorney, Allegany County.  
 After the meeting the Society was entertained by the President, Dr. F. H. Van Orsdale.

## BOOKS RECEIVED.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

**THE CONQUEST OF DISEASE THROUGH ANIMAL EXPERIMENTATION.** By JAMES PETER WARBASSE, M.D., Surgeon to the German Hospital, Brooklyn, N. Y.; Member of the American Medical Association, American Association for the Advancement of Science, etc.; Author of "Medical Sociology." New York and London, D. Appleton & Company. 1910.

**PRACTICAL PATHOLOGY.** A manual for students and practitioners by G. SIMS WOODHEAD, M.A. (Cantab.), M.D., (Edin.), Hon. LL.D. (Toronto). Fellow of the Royal Society, Edinburgh; Professor of Pathology in the University of Cambridge. With 275 colored illustrations. Fourth Edition. London, Henry Frowde, Oxford University Press, Hodder & Stoughton, Warwick Square, E. C. 1910.

**MANUAL OF SURGERY** By ALEXIS THOMSON, F.R.C.S., Ed.; Professor of Surgery, University of Edinburgh; Surgeon Edinburgh Royal Infirmary, and ALEXANDER MILES, F.R.C.S., Ed.; Surgeon Edinburgh Royal Infirmary; Surgeon to Leith Hospital. Volume first, General Surgery. Third Edition revised and enlarged with 339 illustrations. Edinburgh, Glasgow and London, Henry Frowde and Hodder & Stoughton. 1909.

**MANUAL OF SURGERY** By ALEXIS THOMSON, F.R.C.S., Ed.; Professor of Surgery, University of Edinburgh; Surgeon Edinburgh Royal Infirmary, and ALEXANDER MILES, F.R.C.S., Ed.; Surgeon Edinburgh Royal Infirmary; Surgeon to Leith Hospital. Volume second, Regional Surgery. Third Edition revised and enlarged with 227 illustrations, mostly wood engravings. Edinburgh, Glasgow and London, Henry Frowde and Hodder & Stoughton. 1909.

**CONSUMPTION—Its Prevention and Home Treatment.** A guide for the use of patients, by HYSLOP THOMSON, M.D., Medical Superintendent Liverpool Sanatorium. London, Henry Frowde, Oxford University Press, Hodder & Stoughton, Warwick Square, E. C. 1910.

**EMERGENCIES OF GENERAL PRACTICE.** By PERCY SARGENT, M.B., B.C. (Cantab.), F.R.C.S., Surgeon to Out-Patients, St. Thomas's Hospital; Surgeon to the Queen Hospital for the Paralyzed and Epileptic, Queen Square, and ALFRED E. RUSSELL, M.D., B.S. (Lond.), F.R.C.P. Physician to Out-Patients, St. Thomas's Hospital. London, Henry Frowde, Oxford University Press, Hodder & Stoughton, Warwick Square, E. C. 1910.

**THE EXPECTATION OF LIFE OF THE CONSUMPTIVE AFTER SANATORIUM TREATMENT.** By NOEL DEAN BARDSWELL, M.D., M.R.C.P., F.R.S. (Ed.), Medical Superintendent, King Edward VII Sanatorium. Edinburgh, Glasgow and London, Henry Frowde and Hodder & Stoughton. 1910.

## BOOK REVIEWS.

**ASEPTIC SURGERY.** By CHARLES BARRETT LOCKWOOD, F.R.C.S., Surgeon to St. Bartholomew's Hospital. Third Edition. London, Henry Frowde, Oxford University Press. Hodder & Stoughton, Warwick Square, E. C. 1909. Price, \$1.50.

The book is intended to help house surgeons, dressers and nurses to attain an aseptic environment in the preparation of themselves, patients and instruments, also in the preparation of dressings. The author has written to fulfill a need, realizing that successful asepsis can only be maintained by organization. There must necessarily be co-operation between the operating surgeon, members of the house staff and nurses. Infections of clean cases are due for the most part to carelessness and ignorance. The book is instructive, more

especially to nurses; it is very elementary in many respects for even the average house surgeon. The book has probably had a wider appreciation and acceptance locally, more especially among those who are receiving their training under his guidance than generally. The index is admirably arranged.

Part I deals with the micro-organisms of wounds. It is incorrect to describe agar agar as "a firmer kind of gelatine." From a bacteriological standpoint the author is vague and there is much to be desired. It is amusing to read that staphylococcus pyogenes aureus has an odor of pus when growing upon culture media and that the staphylococcus epidermidis produces an odor when it grows such as is smelt when uncleanly people remove their vestments. He believes that keloid is due to the staphylococcus albus. *Mirabile dictu!* He mentions a case in which he resorted to rabbit inoculation of staphylococcus aureus, obtained from a suppurating focus of the upper end of the femur in a boy. Following paraplegia the animal was killed, he says, "to make this case complete the animal ought to have died of epiphysitis." His description of the technic in blood culture leaves much to be desired. To disinfect the skin and prick the finger or ear is hardly in line with the scientific methods of to-day. Little wonder that his results were always negative. With the modern methods of taking larger quantities of blood from the elbow he states that Horder has been particularly successful and has recovered and grown among other organisms the gonococcus. The Neisser organism has been reported, I believe, as having been obtained from the blood, but it is an occurrence of extreme rarity. We all know the difficulty of inducing the gonococcus to grow on artificial media. The author fails to give Coley priority in observing the curative effect of the streptococcus of erysipelas on malignant growths. It is interesting to note that B. Septicus, according to the author, may be seen moving with speed in gelatine. The differential characteristic between B. coli and Eberth's bacillus lies not only in the fact that B. Typhosus does not coagulate with milk as the author states. He speaks of recovering the typhoid bacillus from an abscess fifteen months after the original attack, but fails to mention the frequency with which it persists in the gall-bladder.

Part II deals with the sources of infection. He may never have known of an instance in which ordinary tap water failed to be disinfected by boiling for five minutes, but it is hardly definite to state that water becomes sterile when mixed with small quantities of chemicals. It also astounds us to learn that he uses the ordinary hot water supply in the operating room to make saline infusions. A point well taken is the care he urges in cleaning infected instruments, especially infective material in the teeth of the forceps and in their locks. Among the bacteria he found in towels he describes "a bacillus which grew with a strong sebaceous odor."

Part III treats of disinfection and antisepsis. He takes up heat and chemicals in detail. Of the latter he prefers biniodide of mercury, because it does not combine with albumin, remains clear and translucent, is apparently less toxic and irritating to the tissues, causes no precipitation when mixed with blood. He uses a 1 to 500 solution for the skin and a 1 to 4-5000 throughout the operation. He still holds to the use of dilute antiseptics. During operations for the immersion of silk, silkworm gut, drainage tubes and instruments, he employs a 1 to 60 solution of carbolic for the purpose. He adheres to this because the air is infected, the audience creates dust and coughs and because inexperienced assistants are being taught their work. He devotes a chapter to iodoform and relegates its use to the past with but few exceptions. He fails to mention iodoform dermatitis.

Part IV is devoted to surgical technic, preparation of the patient and instruments for operation. It is this section which deals with much that is of undoubted value. Following sterilization of instruments for op-

eration it seems quite unnecessary to us to place them into a 1 to 60 solution of carbolic acid to maintain asepsis. He makes a good point of so-called emergency instruments, *i. e.*, those taken from the cabinet while operation is in progress which forethought failed to provide. He has learned to distrust them for fear they have not been sufficiently boiled. The statement that frequent boiling does not blunt cutting instruments is not in accord with our experience. He uses the sea sponges, keeps them in a solution of biniodide of mercury, employs two for most operations. He washes out the wound with biniodide of mercury 1 to 4000 or 6000 in preference to normal salt solution to remove clots and bacteria which may have entered from the air. This is hardly in accord with modern wound treatment. These latter chapters are more free from inaccuracies than the preceding and in them lies the particular value of the book. The author's plea is aseptic versus antiseptic surgery and his ideas are good except as noted. With this aim fresh editions are merited.

R. H. FOWLER.

**NUTRITION AND DIETETICS.** A manual for students of medicine, for trained nurses, and for dietitians in hospitals and other institutions. By WINFIELD S. HALL, Ph.D., M.D. Professor of Physiology, Northwestern University Medical School. 298 pages. New York and London. D. Appleton & Company. 1910. Price in cloth, \$2.00.

The sub-title of this work, "A Manual for Students of Medicine, for Trained Nurses and for Dietitians in Hospitals and other Institutions," seems to limit its scope to somewhat elementary lines, but even a hasty glance through its pages proves that the treatment of the subject is broad and thorough enough to include plenty of well-digested pabulum for the average practitioner as well, for dietetics as a separate study has been so little heeded in most medical curricula that practical knowledge of this all-important matter in graduates of more than ten years' standing has been acquired *post partum*, so to speak, and is at the best hardly more than fragmentary. This need Dr. Hall has recognized and emphasizes in his preface, which is short, as prefaces should be.

The book includes four main divisions: namely, Food, the Use of Foods in the Body, Diet in Health and Diet in Disease, with appendices on Classification of Diets, Recipes, and Experimental Chemistry of Foodstuffs, Food and Digestion. A glance at the chapter captions shows the thorough, systematic and rational way in which the subject is developed from the chemical composition of the body and its needs through natural foods up to the complex substances required in general diet, with their care, preservation and cooking.

Part Two deals with digestion, absorption, assimilation and excretion. Part Three takes up the calorific values of foods with the variations demanded by changing conditions, the principles governing the selection of a *menu* and a graded selection of diets for such periods and occupations as childhood and adolescence, the athlete and laborer, anemia and constipation. Chapter XII, on food for normal infants, contributed by Dr. Joseph Brennemann, furnishes an admirably concise and sensible exposition of this essential division of dietetics not usually offered as a separate section in general text-books.

The arrangement of Part Four, on Diet in Disease, shows the same excellent method of arrangement, clarity of statement and reasonable treatment that characterizes the rest of the book, which, as a whole, merits unqualified commendation.

N. G. WEBSTER.

**THE SURGERY OF THE EAR.** By SAMUEL J. KOFETZKY, M.D., Illustrated. N. Y., Rebman Co., 1908. xvii, 368 pp., 19 pl., 4 col. pl., 8vo. Price: Cloth, \$4.00.

The writer "has attempted to correlate the extensive literature of the Surgical Diseases of the Ear with

personal experience and observation, and produce a volume adapted to the needs of the medical student, the practitioner, and the specialist."

The personal experiences and observations of a busy practitioner always make interesting and instructive reading, and force is given to the author's advocacy of various procedures by the knowledge that he has fully tested them previous to recommendation.

To the reviewer, however, the *reference* nature of the work appeals most strongly. Standard American and foreign Text-Books, monographs, and periodicals have been freely used, and the authorities consulted are listed at the end of each chapter, thus greatly facilitating the study of any given subject. While, as the author states, "these references are not given as the complete bibliography of the subject discussed, but are intended to indicate to those interested where additional matter may be found," still they seem to the reviewer to meet all reference requirements excepting only those of a most exhaustive character.

In addition to these features the author has endeavored with a very good measure of success, through particular attention "to the indications for operation, the points of technique, and the after treatment of the wound," to make of the Book a practical guide to the operator. The Book should prove a valuable addition to any medical library. J. E. S.

### IN MEMORIAM.

At a regular meeting of the Clinical Society of the New York School of Clinical Medicine, held on May 3, 1910, the following resolutions were adopted:

WHEREAS, We have learned with deep sorrow of the sudden and untimely death of our esteemed associate and colleague, Dr. Augustin H. Goelet, who for more than twenty years had given his best efforts to this institution, and

WHEREAS, Professor Goelet was a man of high honor and integrity, beloved and respected by all who knew him for his geniality, his sincerity and his many scholarly attainments, therefore be it

*Resolved*, That we now record this our last sad tribute to his memory, and join in expressing to his bereaved family our sincerest sympathies, and be it further

*Resolved*, That these resolutions be spread on the minutes of this society, and that a copy thereof be transmitted to his family and to the medical press, as a token of our respect and as reverence to his memory.

*Committee,*

ABRAHAM L. WOLBARST, M.D.  
EDWARD L. KELLOGG, M.D.,  
THEODORUS BAILEY, M.D.,

### DEATHS.

GEORGE A. BELLOWES, M.D., Waterloo, died May 10, 1910.

HENRY BELT, M.D., New York City, died May 6, 1910.

F. TILDEN BROWN, M.D., New York City, died May 7, 1910.

SIMON L. ELSNER, M.D., Rochester, died June 5, 1910.

S. BEACH JONES, M.D., New York City, died May 13, 1910.

PETER J. MCCOURT, M.D., Larchmont, died May 7, 1910.

EDWIN FORREST PRESTON, M.D., Amityville, died May 26, 1910.



# NEW YORK STATE JOURNAL OF MEDICINE

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## EDITORIAL DEPARTMENT

### THE LEGAL LIABILITY OF HOSPITALS.

THERE has been a general impression on the part of the managers of hospitals that they are not liable for the negligence of their servants since these are charitable institutions. There have been a number of decisions which favor this view, but recently the Appellate Division of the Supreme Court of the State of New York in the Second Department has handed down a decision which is of the utmost importance to the institutions concerned and which, if not reversed by the Court of Appeals, will almost compel all hospitals to take out liability policies in self-defence, or abandon their ambulance service.

In *Kellogg vs. The Church Charity Foundation*, the facts were as follows: St. John's Hospital contracted with a livery stableman to furnish the hospital with a horse and driver for its ambulance. While answering a transfer call the driver turned the corner on the wrong side of the street and the shaft hit a bicyclist, injuring him so that the removal of an eye was necessary. On the first trial of the case the Court directed the dismissal of the complaint on the ground that charitable organizations are not liable for the negligence of their servants. On appeal a new trial was ordered by the Appellate Division, Judge Gaynor writing the opinion. He states that the opinions and decisions extant concerning exemption are not only conflicting but they do not agree upon the rule of exemption from liability, and many of the reasons given are fallacious. The judge goes on to say that the Supreme Court in New York is free from the constraint of authority since the question has never been settled in this state, if in any state. The opinion then proceeds to a discussion of the different classes of cases arising under the law (128 Appellate Division 214). It makes a distinc-

tion between acts of negligence on the part of physicians, surgeons and nurses, holding that they are not servants in the strict sense of the word, and that therefore the rule of "respondet superior" does not apply. An exception to this, however, would be when previous and known and continued negligence was known to exist, when the hospital would still be liable for retaining such a person in its employ, even though not a servant. In the case of ambulance drivers, elevator men, orderlies and "the ordinary run of servants who are subject to the master at any moment in the manner and way of doing the work assigned to them in general and in detail," the Court holds that to these the rule "respondet superior" applies and that the hospital is therefore liable. The judgment of the lower court was reversed, a new trial ordered at which, under the ruling of the Appellate Division, a verdict of \$30,000 was rendered for the plaintiff. This was again appealed on the ground that the ambulance driver was not the servant of the hospital, but of the contractor. A recent opinion of the same Court written by Judge E. B. Thomas, holds that, inasmuch as the driver wore the ambulance cap of the hospital and as the ambulance itself bore the name of the hospital on its side, that the hospital was liable, and the judgment was affirmed. In both instances the decision was unanimous. The case has been appealed to the Court of Appeals.

Apart from the very large verdict, \$30,000, an amount more than equal to the gross receipts of the hospital for an entire year, these decisions are of the greatest moment to all hospitals. Ambulance drivers are not men of a high degree of intelligence. They know that under a city ordinance they have the right of way and they are every day taking risks which, if driving a grocery wagon they would not incur. Moreover, when answering a hurry call, prompt arrival may mean the life of the injured person, delay involv-

ing his death, they are bound to use their utmost speed. The ambulance is provided with an alarm gong similar to that of the fire department, which is kept ringing to warn traffic and foot passengers of the approach of the ambulance. The situation is one of emergency. The hospital takes care to employ a sober driver, but no hospital could guarantee that acting in emergency, a driver would always do the right thing so as to keep outside the definition of negligence. Moreover, while undoubtedly circumstances alter cases, nevertheless it is impossible to formulate an exact rule as to what would constitute negligence in every case. Thus the hospital is left between two fires. Its ambulance service is an emergency service like the fire department. There is much the same need of haste and the same risk of accident. If the ambulance is slow in arriving and a death results, the hospital management is scored by press and public. If, in carrying out its duties to the public an accident happens, it must still take its chances with a jury and the uncertainties of the law.

If this decision is finally affirmed by the Court of Appeals the hospitals will have two courses open to them. They will either have to refuse altogether to maintain an ambulance service and throw the responsibility thereof entirely on the City, or they will have to be prepared to pay heavily to the Casualty Companies for insurance. The first expedient has much to commend it.

A. T. B.

### THE INTERESTS vs. THE DEMOCRACY.

**T**HIS is a struggle which is centuries old and coeval with the dawn of human liberty. It is a battle of organized selfishness against unorganized helplessness; of greed with need. In this contest the democracies of the past succumbed. The American republic is to-day menaced by the same evils which were fatal to the older democracies. We are now engaged in a veritable Armageddon, a battle not of three days, however, but one which must be carried on after us by our children and our children's children until this republic triumphs over the forces of greed, selfishness and special privilege or goes down in hideous ruin, the saddest of all experiments in popular government. Industrial power concentrated in the hands of a few men is the Frankenstein which confronts the republic. The problem of control agitates our legislatures and puzzles our jurists. The Medical profession has been drawn into the conflict. To its honor be it said that it has never marched under the banner of special privilege nor ranged itself with the classes against the masses. It has been waging war for years against the forces of avarice and evil in defence of the people's health. The pure food legislation, wrested from a reluctant Congress was championed by the American Medical Association. The war against the nos-

trum vendors and conscienceless proprietaries is of still more recent date. As a result of these campaigns, misbranding has become both illegal and unpopular, and men with neither conscience nor heart can no longer defraud and poison their dupes under pretence of curing them. Their incomes have been correspondingly depleted. As fraud has become less profitable, however, the ire of the adulterators of food, the quack salvers and the whole horde of vampires and blood suckers has arisen against the medical profession, which has long been of the opinion that men, women and children are as deserving objects of study as horses, hogs and horticulture. It has long been aware of the difficulties which have surrounded the various medical activities of the government. It knows the strength of the interests opposed to Dr. Wiley and has watched with apprehension the herculean efforts which the interests have put forward to nullify the statute passed to protect the people from adulteration and false weights and misbranding. It believes that if there is need for a Department of Agriculture there is greater need for a Department of Health. The interests know equally well that it will be much harder to deal with a department headed by a cabinet officer, than with a bureau chief. This is the secret of the campaign which is being waged against the American Medical Association. The meanest and most despicable of the trusts accuses the medical profession of being a trust and of plotting against the liberty of the people. The American Medical Association is not plotting but campaigning in the open against the liberty of certain people to delude the public for gain. It is conducting a campaign against fraud and every other artifice which certain interests employ to fill their own pockets, for which they are working all the time at the expense of the credulous and ignorant. The proprietary interests with their allies, the sentimentalists and faddists are contending: for the right to lie; for the right to steal; for liberty to bear false witness. This is the only freedom which is threatened by the establishment of a Department of Health.

Senator Owen's bill is intended to combine under one chief, various bureaus now scattered among several different departments. It will doubtless be more efficient, more difficult to circumvent, but will threaten the liberty of not a single individual in respect to all righteous and legal activities.

If it be tyranny to prevent men from obtaining money under false pretenses, we hope it will accomplish this end. If it be tyranny to compel a man to tell the truth, we hope it will succeed in this also. If it be tyranny to make cheating by misbranding, adulteration and short measure illegal, we hope it will accomplish this act of tyranny also. The men who are fighting this bill want liberty to do all these things. It is the purpose of the American Medical Association to prevent them.

A. T. B.

## AMERICAN MEDICAL ASSOCIATION.

THE Sixty-first Annual Session of the American Medical Association was held at St. Louis, Mo., during the second week of June. From every standpoint this meeting should be considered one of the best in the history of the organization. The registration was nearly 4,100 which was remarkably good, when one considers the distance of St. Louis from that portion of the United States in which is located a large percentage of the profession of the country. The attendance was the largest in the history of the Association with the exception of the meetings held in Chicago and Boston. New York State was well represented, over 150 having registered during the first two days.

The local profession did everything in their power to provide for the entertainment of their guests and are entitled to great credit for the excellent arrangements and for the great hospitality shown. The weather during the early part of the meeting was all that could be desired, but the out of door entertainments of Wednesday and Thursday were spoiled by the rain, with the exception of the evening entertainment on Thursday at the Forest Park Highlands, which was most enjoyable. The attendance at this function was large, but would have been much larger had it not rained nearly the entire day. The scientific work of the various sections was up to the standard and all the meetings were well attended. The morning addresses of Tuesday were delivered in the Odeon Theatre, which was very well adapted for the purpose and provided ample seating room for the large audience. The address of Governor Hadley of Missouri was particularly gratifying to the physicians, as he came out fairly and squarely in favor of the work that was being done by the profession for the uplifting of the people. The address was delivered with great effect and interrupted by frequent outbursts of genuine applause. The orator in surgery was Dr. Robert Abbé, a member of the New York County and State Societies, and those from New York felt a special interest in both the retiring and incoming presidents, because Dr. Gorgas was a former interne at Bellevue Hospital and Dr. Welch began his life work in New York City, so that both were not only known for their great achievements in medicine, but were personal friends of many of the New York men. The work of the House of Delegates was particularly onerous this year, and at no previous session was more accomplished. The method of referring reports of officers, trustees and committees to reference committees was of great advantage in facilitating the work. These committees held sessions between the meetings of the House, and not only gave their personal attention and time to the reports, but listened to those who desired to speak for or against the recommendations contained therein. The work of

these committees should be specially commended, because the profession at large does not realize how much they did. One committee was practically in continuous session for over twenty-four hours, only stopping for meals and for a slight amount of much needed sleep. As is usual in large bodies, many resolutions are introduced that are apparently of much interest to the introducer or to the organization that caused them to be introduced, but after thorough investigation are found to be not suitable for adoption by the general body. Hearings on these matters were held before a small body—the Reference Committee—and the work of the House went on. In nearly every instance the report of the Reference Committee was adopted. Each year the amount of business introduced becomes greater, and but for this method of reference committees it would be impossible to finish the session in the time allotted, namely, from Monday to Thursday evening. There is also a decided feeling that it is not advisable for the Association to embark in too many new enterprises, and that it is better to do thoroughly what has already been undertaken than to start many things that to some seem most desirable.

The By-Laws were amended in a number of particulars, principally with the idea of overcoming certain defects that were apparent, such as the evident lack of clearness as to the right of the President to fill vacancies in the standing committees in the interim between the meetings of the House, and in correcting certain errors that had crept in by repeated amendments and by changes in the arrangement of the organization made at this meeting.

The Council on Medical Education and the Council on Pharmacy, which have been practically permanent bodies, have so clearly demonstrated the value of such bodies over committees appointed for a year, that a new Council was formed, which will take up, continue and elaborate the work formerly done by the Committee on Legislation, the Committee on Organization, the Committee on Public Education and the Committee on the Defence of Medical Research. This body is to be known as the Council on Health and Public Instruction. It is to consist of five members, and the first council is to be composed of Dr. H. M. Bracken of Minneapolis to represent public health; Dr. W. B. Cannon of Boston to represent defence of medical research; Dr. Henry B. Favill of Chicago to represent public instruction; Dr. J. N. McCormack of Bowling Green to represent organization, and Dr. W. C. Woodward of Washington, D. C., to represent legislation. One member is to retire each year and his successor is to be nominated by the President and elected by the House. It will be organized at an early date, will have a permanent and paid secretary, with headquarters in the association building in Chicago, and should prove of the utmost value to the Association. Un-

der it will be formed sub-committees which will take charge of special lines of work and will be responsible to it and guided by it, and under the control of the trustees in the interim between the annual meetings.

Another subject of great interest to the profession and American medicine was the authorization by the House, for the trustees to establish special journals devoted to pediatrics and surgery, and which are to be similar to the *Archives of Internal Medicine*. These journals are expected to fill a want that has been apparent for many years, they will be a medium for the publication of high grade scientific articles too technical in character and too long to be published in the *Journal of the American Medical Association* and which have not appealed to the publishers of independent journals because of the fact that they could not be published owing to the expense and to their size. The idea is not to take away from the *Journal of the American Medical Association* anything that is of value to the general profession nor to deprive that journal of articles that would properly belong there. They are not intended to be exclusive publications for either a section devoted to pediatrics or surgery, or to a society. They will not publish proceedings of such organizations, but will endeavor to publish articles that will be of such value to those who are practicing surgery or diseases of children that all who are interested in these special branches will feel the necessity for subscribing to them. They are to be issued without advertising and in every way to be of the highest possible type. Both are to be edited by boards of editors to be appointed by the trustees, and each publication is to be under the control of the trustees. As the *Archives of Internal Medicine* has been such a great success, and is issued without loss to the Association, it is expected that these journals will prove equally successful.

Another matter of general interest was the selection of new insignia, which was made necessary owing to the fact that in 1906 representatives from the different civilized governments of the world met at Geneva, Switzerland, for the purpose of amending the original articles of the Geneva Convention for the amelioration of the condition of the wounded in the armies in the field. Article 27 of this convention provides that "the signatory powers whose legislation may not now be adequate, engage to take or recommend to their legislatures such measures as may be necessary to prevent the use, by private persons or by societies other than those upon which this convention confers the right thereto, of the emblem or name of the Red Cross or Geneva Cross." This agreement affects all persons using the insignia, and a new one is to be provided consisting of a button similar in shape to the present one, but which shall contain instead of the Geneva Cross, a knotty rod and serpent.

The subject of a National Department of Health received much attention. The President referred to it in his annual address. Dr. Reed in the Report of the Committee on Medical Legislation stated that, "the energies of the Committee during the past year had been largely devoted to the promotion of national legislation calculated to protect the health interests of the people," and gave a list of the various bills introduced into the Senate and House designed to accomplish this purpose. No less than five such measures were under discussion, and in addition a bill was introduced in the House of Representatives to create a Committee on Public Health, which would have the same standing in the House that the Committee on Public Health and Quarantine has in the Senate.

The report of the Committee on Organization, Dr. McCormack, Chairman, was also devoted largely to the work in Washington during the winter and spring in favor of the creation of a National Department of Health. The Reference Committee, on reports of officers to which all these matters were referred, reported and the House of Delegates passed the following resolution:

*Resolved*, That the President be and is hereby authorized to appoint a committee of seven members which shall be charged with the duty of framing a bill for the National Department of Public Health, to be presented to the next session of Congress in December, and that this committee shall consider and determine all matters and policies relating to national health legislation and may invite the co-operation and co-operate with other organizations having this same purpose in view, and that the President, Dr. Welch, be named as a member of the committee.

Much other work was accomplished and all members should read the reports of the committees and of the meetings which are to be found in the journals of the American Medical Association for June 11th and 18th. The above matters, however, seem to be especially worthy of note and are therefore spoken of.

New York State, through the Medical Society of the County of Erie and the Chamber of Commerce of Buffalo and through the Medical Society of the State of New York, extended a cordial invitation to the Association to meet in Buffalo in 1911, but by a vote of 61 to 58 Los Angeles was chosen.

The society was represented in the House of Delegates by the following members:

J. Riddle Goffe, New York; W. H. Thornton, Buffalo; V. C. Pedersen, New York; J. E. Weeks, New York; D. H. Murray, Syracuse; J. O. Roe, Rochester; Chas. Jewett, Brooklyn; W. T. Mulligan, Rochester; E. H. Bartley, Brooklyn; Chas. Stover, Amsterdam; J. E. Sadlier, Poughkeepsie.

W. R. T.

Original Articles

STATUS THYMO-LYMPHATICUS AND ITS RELATION TO SUDDEN DEATH.

By GERHARD HUTCHISON COCKS, M.D.  
NEW YORK CITY.

ADULTS and children with the condition known as status thymo-lymphaticus are especially liable to die from infectious disease, and are particularly subject to death from shock and death from anæsthesia.

The term status thymo-lymphaticus, or status lymphaticus, is applied to people who present hyperplasia of the thymus gland, lymph-nodes, tonsils, lymphatic elements of the spleen and intestinal tract, and lymphoid marrow of the long bones. Associated with this condition are often found hypoplasia of the heart and arteries; evidences of infantilism, signs of old or recent rickets, abnormalities of the thyroid gland, idiopathic epilepsy (Ohlmacher), acromegalia, Addison's disease and myxoedema. There are many grades of status lymphaticus from cases showing simple hyperplasia of the thymus to those exhibiting extreme enlargement of this gland with pronounced hyperplasia of all the lymphatic elements of the body.

There is considerable doubt that status thymicus and status lymphaticus are identical conditions. Adami and Nichols state that they personally regard the thymus as a lymphatic organ. According to Hart, the newer investigations of Wiesel and Hedinger tend to prove that the two are essentially different phenomena. In pure status lymphaticus there is present a *hypoplasia* of the chromaffin system, especially in the adrenals, analogous to that found in Addison's disease. In pure thymus hyperplasia, on the contrary, the chromaffin system is always well developed. Again, the thymus is developmentally an epithelial organ, derived from the hypoblast of the third visceral cleft. The epithelial elements gradually atrophy, the sole representative of their existence being the Hassall bodies, which are supposed to be due to coalescence of the epithelial remnants. The structure is finally substituted by vascular connective tissue from which the lymphoid elements are derived (Adami and Nichols). Thus the thymus at birth consists largely of lymphatic tissue like that of the lymph-nodes, spleen and other organs of the lymphatic system.

For the purpose of this paper we shall speak of status thymicus and status lymphaticus as identical, using the terms status lymphaticus or status thymo-lymphaticus synonymously.

\* Paper read before Section on Laryngology and Rhinology of the New York Academy of Medicine, April 27, 1910.

Perhaps future investigators may throw more light on this interesting problem.

NORMAL WEIGHT OF THYMUS.

The question as to the normal weight of the thymus at different ages is a much mooted one. Hammar believes that the thymus undergoes rapid involution in both acute and chronic illnesses. In death from disease, he claims that the organ is often reduced to one-twentieth or more of its normal weight. In support of this view Hammar quotes Johnson, who reports that four days' starvation of dogs diminishes the thymus to two-thirds its normal weight; while thirty days chronic underfeeding brings about a thymus weight of one one-hundredth of the normal.

Below are given figures for the normal weight of the thymus at different ages, taken from Hart:

HAMMAR.		AVERAGES.		FRIEDLEBEN.	
	Grams.				Grams.
For new-born	13.26	1-0 months	20.7		
1-5 years	22.98	9-24 "	27.3		
6-10 "	26.10	2-14 years	27.0		
11-15 "	37.52	15-25 "	22.1		
16-20 "	25.58	25-35 "	3.1		
21-25 "	24.73			VON SURY.	
26-35 "	19.87	New-born	14.4		
36-45 "	16.27	Child in 1 month	15.0		
46-55 "	12.85	2-9 months	24.3		
56-65 "	16.08	9 months—2 years	23.2		
66-75 "	6.00	2-14 years	25.8		

Thus we see that the average weights obtained by Hammar are much greater than those of Friedleben and von Sury. Hammar attributes this to the fact that his material is taken from one hundred and twenty-six individuals who died while in complete health, from accidental causes. On the contrary, von Sury's figures, which practically agree with Friedleben's, were taken from children who died from acute and chronic diseases.

According to von Sury and Friedleben the greatest weight of the thymus (27 g.), is attained at the end of the second year; while Hammar's statistics place the maximum weight (37 g.), between the eleventh and fifteenth years. The latter view, which is more probably correct, is substantiated according to Hammar, by observations conducted by Soderlund and Backman. It was found that the height of the thymus curve was reached in dogs at the end of the fourth month of life, at the time when spermatogenesis begins. This period in dogs corresponds to the period of puberty in men (eleven to fifteen years).

In passing, it is interesting to note that Hammar believes the weight of the thymus gland as a whole is no criterion for estimating the amount of parenchyma of the organ, which is the functioning part. For example, at the ages of one to five years an average thymus weight of

about twenty-three grams corresponds to a parenchyma of about twenty grams. At the ages of twenty-one to twenty-five years, the average weight of twenty-five grams has a parenchyma of scarcely five grams.

As far back as 1889, Paltauf of Vienna called attention to the fact that status lymphaticus was responsible for sudden death from shock and immersion in cold water, and that the subjects of this condition bore chloroform anæsthesia badly. His writings acted as a stimulus to investigations in this field; until now numerous instances are on record.

Paltauf reported the case of a twenty-year-old factory worker swimming with his companion in a stream, who suddenly shrieked, sank under water, and was brought up almost immediately a corpse. Autopsy showed a thymus ten centimeters long, one centimeter thick, five to six centimeters broad; contracted aorta, heart fairly large and pale. Lymph-glands and spleen enlarged and pale. Adenoid tissue of nasopharynx and base of tongue hypertrophied.

Paltauf reported a case of Nordmann's somewhat similar to the one just quoted. A twenty-year-old recruit, went swimming before his mid-day meal. After a few minutes in the water he returned to the shore, had a chill, and fell to the ground, rolling his eyes. In spite of attempts to resuscitate him, the young man quickly died. Autopsy revealed dark fluid blood, œdema of the lungs, congested internal organs, hyperplasia of the thyroid, faucial and lingual tonsils, lymph glands and spleen. The thymus was the size of a man's fist.

During the past year the writer has seen several reports of sudden deaths from the subcutaneous injection of diphtheria antitoxin, where the patients were said to be subjects of status lymphaticus.

Recently there have been a large number of autopsies in New York at the city morgue, upon workmen who have died of Caisson disease. In many of these, status lymphaticus was present. It is highly probable that status lymphaticus increases the liability to sudden death in compressed-air workers.

#### SUDDEN DEATH FROM ANÆSTHESIA.

Of great interest to the surgeon is the relation of status lymphaticus to death from the use of both general and local anæsthetics.

(1) Blake has reported seven cases, operated upon in Roosevelt Hospital in one year, who died during or shortly after ether narcosis, where the only discoverable cause of death was status lymphaticus. Hart, mentions the following fatalities due to status lymphaticus in connection with the use of general anæsthesia:

(2) Laquer's case, a fourteen-year-old boy operated upon for the enucleation of an eye-ball.

(3) Michl's case, three-quarters of an hour

chloroform narcosis; ear operation. Patient suddenly became asphyxic, Cheyne-Stokes respiration, death.

(4) Ploc saw a sixteen-year-old boy die suddenly at the beginning of narcosis.

(5) Lecène saw a man twenty-two years old, who, after incision of a bubo under general narcosis, suddenly died while apparently in the best of condition. Weight of thymus thirty-five grams.

(6) Katholicky had a female patient forty-six years old, upon whom a herniotomy was performed under chloroform narcosis who died suddenly four days after operation, apparently from heart collapse. Dimensions of thymus 8x7x2 cm.

(7) W. J. McCardie collected a series of thirty fatalities. The anæsthetic was chloroform seventeen times, ether six times, a mixture of chloroform and ether five times. Two were doubtful cases, the anæsthetic being nitrous oxide gas.

(8) Under local anæsthesia three deaths have been recorded.

(a) Horoszkiewicz, quoted by McCardie—Tropocaine 0.075 gm. injected locally for the removal of a small cyst of the neck.

(b) T. J. Harris' case of tonsilotomy, cocaine anæsthesia. The operation was quickly performed. It was almost immediately followed by syncope and death. The patient was an adult. Autopsy revealed a thymus weighing eighteen grams.

(c) H. Nettel's case of a woman thirty-four years old, Schleich's infiltration anæsthesia for the removal of an exophthalmic goitre. Autopsy—status lymphaticus with enormous hyperplasia of the entire lymphatic apparatus.

(9) Warthin reported the case of a woman forty-one years old, who died suddenly during anæsthesia. Status lymphaticus. Persistent thymus—cardiac death. Microscopically "lymphoid exhaustion of lymph-nodes and spleen."

(10) Robert records the case of a twenty-three-old woman who died three minutes after the administration of two drams of bromide of ethyl for the extraction of a tooth. Autopsy showed status lymphaticus, the thymus measuring  $3 \times 2\frac{1}{2} \times 3\frac{3}{8}$  inches.

(11) L. M. Hurd performed an adenoid and tonsil operation upon a negro child two and one-half years old under ether anæsthesia, who was returned to the ward from the operating room in good condition. The child died suddenly twenty-five minutes after operation. Autopsy demonstrated a large thymus covering the whole anterior surface of the heart and great vessels, also hyperplasia of lymphatic system. The larynx, trachea and bronchi contained no evidence of blood clot.

These reports demonstrate conclusively that chloroform is the most dangerous anæsthetic to

use if status lymphaticus exists. In adenoid and tonsil operations especially, chloroform should be avoided.

Notwithstanding the fact that many eminent authorities deny the existence of thymic asthma and thymic death due to mechanical pressure of the enlarged thymus gland upon the trachea; yet this undoubtedly occurs. Jackson reported a case of thymic asthma which well illustrates this type. A boy four years old was brought to him for the relief of dyspnoea and stridorous breathing, steadily increasing since an attack of croup six weeks before. Tracheotomy failed to relieve the dyspnoea, it being necessary to pass a long tracheoscopic tube to get by the obstruction. By direct inspection the walls of the trachea were seen to be collapsed from before backward. The performance of thymectomy relieved the dyspnoea permanently. The enlarged thymus gland was demonstrated by radiography before operation.

In view of the paucity of our knowledge concerning status lymphaticus, the following cases may be of interest. All but one are taken from the Bellevue Hospital Pathological Department records. I wish to acknowledge my indebtedness to Dr. Charles Norris, the director of this laboratory, for permission to publish the following notes:

#### CASES OF STATUS LYMPHATICUS.

1. Italian child, seven months old. Brought to New York Post-Graduate Hospital because of dyspnoea and cyanosis. Second day of illness began to cough, and breathing became labored. Nurse in attendance suspected foreign body in air passages from actions of child. Third day auscultation revealed a few subcrepitant râles at bases of lungs. Temperature rose, and child died.

Autopsy. Broncho-pneumonia; dilatation of the heart; congestion of meninges; cloudy swelling of kidneys and liver; enlargement of inguinal, cervical, axillary, bronchial and mesenteric lymph-nodes. Thymus greatly enlarged. Dimensions: length two inches; breadth two and three-quarter inches; thickness three-quarters of an inch. Microscopic examination: Simple hyperplasia of thymus.

2. Boy, nine years old. Epidemic cerebro-spinal meningitis. Duration of illness two days. Status lymphaticus. Thymus enlarged, extending down almost to auriculo-ventricular groove. Spleen small. Lymphoid elements prominent. Peyer's patches and lymphoid follicles of intestines hyperplastic. Mesenteric lymph-nodes enlarged to size of almond. Hypertrophy of tonsillar ring.

3. Boy twelve years old. Ill four and one-half days. Epidemic cerebro-spinal meningitis. Status lymphaticus. No axillary or pubic hair, pubes being covered with lanugo. Thymus enlarged, extending half way down over pericar-

dium. Marked hypertrophy of lingual, pharyngeal and faucial tonsils. Aorta is narrow.

4. Male, age eighteen years. Epidemic cerebro-spinal meningitis. Patient unconscious when admitted to Bellevue Hospital. Only five days in United States. Large well developed subject. Lanugo on lips and face. Axillary hair scant. General rotundity of limbs. Thymus enlarged, reaching down to auricles of heart. Hypoplasia of aorta.

5. Male, nineteen years old. Epidemic cerebro-spinal meningitis. Death on fourth day of illness. Status lymphaticus. Suppurative pericarditis. Thymus enlarged, extending downward to pericardium. Pubic hair of female type. Pulmonary valve has only two cusps. Retroperitoneal glands enlarged. No lymphoid hyperplasia of spleen or intestinal tract.

6. Female child twelve years old. Epidemic cerebro-spinal meningitis; acute mastoiditis; acute parenchymatous nephritis. Status lymphaticus. Death on second day of illness. Thymus enlarged  $12 \times 6 \times 1\frac{1}{2}$  cm. Weight thirty-one grams. Pubic hair undeveloped. Axillary hair absent. Well developed body. Inguinal, axillary and cervical nodes enlarged to size of almonds. Large adenoid. Hypertrophy of faucial tonsils. Aorta shows a dimple of the ductus arteriosus, with a prominent ridge above it, taking in half the circumference of the vessel, which is slightly stenosed. Both adrenals swollen and hæmorrhagic, the right measuring  $5 \times 3 \times 1$  cm. Uterus 3 cm. long of which 2 cm. belong to cervix and 1 cm. to body.

7. Female, twenty-eight years old. Epidemic cerebro-spinal meningitis. Status lymphaticus. Duration of illness twenty-four hours. Persistent thymus, glandular on section. Mesenteric and retroperitoneal glands hyperplastic, and as large as almonds. Superficial lymph-nodes and faucial tonsils enlarged.

8. Male, eighteen years old. Pyæmia. Death on eleventh day of illness. Status lymphaticus. Thymus enlarged, reaching to lower border of third rib. Staphylococcus isolated from blood during life. Multiple abscesses of lungs, suppurative myelitis. Poorly nourished subject; broad perineum. Small external genitals. Pubic hair female type. No axillary hair and none on chest. Bronchial lymph-nodes enlarged and suppurating. Peyer's patches and solitary follicles of small intestine are prominent. Mesenteric and retroperitoneal glands enlarged.

9. Woman, twenty-three years old. Exophthalmic goitre. Status lymphaticus. No history obtained. Thymus enlarged. Weight thirty grams, completely covers pericardium. Small woman, fairly well developed. Pubic hair well developed. Retroperitoneal lymph-nodes contain tubercular foci. Lingual and faucial tonsils enlarged. Marked hypertro-

phy of lymphoid follicles of pharynx. Mesenteric lymph-nodes enlarged. Thyroid and parathyroids enlarged.

10. Boy, five years old. Ill for one week; intubated on suspicion of diphtheritic laryngitis. Autopsy—status lymphaticus. Larynx normal. Thymus enlarged, weighing thirty-three grams. Peripheral lymph-glands are enlarged to size of large peas or almonds. Hypertrophy of faucial and lingual tonsils. Mesenteric and bronchial glands enlarged, the latter being slightly pigmented. No note made of collapse of walls of trachea. This case resembles the type due to suffocation caused by mechanical compression of trachea by enlarged thymus gland.

#### PATHOLOGY OF STATUS LYMPHATICUS.

The gross lesions of status lymphaticus found after death, consist, as already stated, of hyperplasia of the thymus gland and lymphatic elements throughout the body.

The *hyperplasia of the thymus* is described by Ewing "as usually being a simple hyperplasia of the lymphoid cells, enlarging and multiplying the follicles, sometimes causing the deposit of small nodules of lymphoid cells in the centres of the lobules, in the trabeculæ, or even in the outlying adipose tissue." With the general hyperplasia of the lymphoid elements, Blumer found a proliferation of the endothelial cells lying along the trabeculæ of the organ. The thymus is occasionally fatty.

The *hyperplasia of the lymphatic system* is shown by enlargement of the cervical, axillary, inguinal, mesenteric and bronchial lymph-glands, by hyperplasia of the faucial, pharyngeal and lingual tonsils. The solitary and agminated lymph-follicles in the intestinal tract are often hyperplastic and there is generally present an enlargement of the spleen, due to a similar hyperplasia of the lymphoid elements, accompanied by hyperæmia. On cross section the enlarged Malpighian bodies of the spleen stand out prominently from the surrounding pulp. There is occasionally an infiltration of the splenic pulp by the lymphoid cells. Ewing has observed a hyperplasia of the lymphoid marrow of the long bones, and McCardie an enlargement of the tongue, in addition to the hypertrophy of the lingual tonsil. I am inclined to think this observation of McCardie an accidental finding, due to some other cause than status lymphaticus.

Paltauf noted a lessening in the amount of hæmoglobin in the blood, while Ewing in one instance observed a lymphocytosis of 76 per cent.

Anomalies of the heart and arteries are frequently present. Case two presented a pulmonary valve with but two cusps, while cases three and six showed hypoplasia of the aorta.

This latter lesion produces a small pulse which may be detected clinically.

Anomalies of the thyroid gland are often found in people dying from status lymphaticus. Wynne, quoted by McCardie, reports a series of twenty cases, in all of which the thyroid was abnormal. In ten it was markedly enlarged. In the others it was of normal size, or but slightly enlarged. Microscopic examination showed marked changes in all twenty cases, either reduction or absence of the colloid material, with hyperplasia of the cells which grow into the alveoli.

Warthin observed hyperplasia of the parathyroids in one case of status lymphaticus associated with acromegalia. Among associated conditions, exophthalmic goitre probably ranks first in importance. Capelle, quoted by Hart, states (1) among nineteen Basedow patients who died of intercurrent diseases, fourteen were thymus carriers *i. e.*, 44 per cent.; (2) among seventeen patients who died from Basedow's disease, fourteen were thymus carriers, *i. e.*, 82 per cent.

Other associated conditions are idiopathic epilepsy, acromegalia, myxœdema, rickets and Addison's disease. Hedinger states that in a strikingly large number of cases he found Addison's disease in combination with status lymphaticus.

From a study of the cases already quoted, we see that status lymphaticus is a frequent cause of sudden death during anæsthesia, infectious disease, and from trivial shock, such as bathing, etc. In the cases of meningitis reported by the writer, death occurred early in the disease, distinctly modifying its course. Daut, quoted by Blumer, states that in a series of patients dying from diphtheria, over 25 per cent. had status lymphaticus. He says that "distinct modifications of the clinical picture of the disease (diphtheria) were present in these cases. In some instances the patients had a hoarse, barking cough, and a hoarse voice, associated with attacks of spasmodic suffocation, weakness of the heart and rapidity of the pulse. These attacks were altogether out of proportion to the severity of the membrane formation as shown post-mortem. In other cases the patients died suddenly, having shown no unusual symptoms during life referable to the status lymphaticus."

#### THEORIES OF DEATH.

There are three theories advanced to account for sudden death in status lymphaticus.

1. Theory of mechanical compression.
2. Paltauf's theory.
3. Theory of hyperthymization.

1. *Compression Theory.*—It has been proven that in rare instance the enlarged thymus gland may compress the trachea sufficiently to cause death by suffocation. The relief af-



forded by thymectomy is proof of this fact.

In this connection the thickness of the thymus is of more importance than its other dimensions, as the following figures of Von Sury show:

*Average thickness of thymus*—Newly-born, 1.1 cm.; child in I month, 1.4 cm.; child in II-IX months, 1.5 cm.

*Average sterno-vertebral distance*—Newly-born, 1.6 cm.; child in I month, 1.7 cm.; child in II-IX months, 2.0 cm.

Thus we see that at the superior aperture of the thorax there is normally only a space of one-half cm. between thymus and the bony walls of the chest, measuring from before backward. Forcible extension of the head decreases this distance. In rickets this sterno-vertebral distance is apt to be small, owing to the frequent occurrence of lordosis.

2. *Paltauf's theory*.—Paltauf believes that the hyperplasia of the thymus and lymphatic apparatus is due to an intoxication of the organism caused by faulty tissue changes, or by such common causes as infection and hereditary syphilis. The nerve centres governing the movements of the heart become affected, and a lessened resistance of the individual toward harmful external influences is induced. Under such circumstances the heart may suddenly become incapable of functioning.

3. *Theory of hyperthymization*.—There is thought to be a pathological increase of the internal secretion of the hyperplastic thymus, which renders the organism more susceptible to external influences. According to Hart, Barbarossa states that thymectomized animals are capable of offering considerable resistance to chloroform poisoning, while animals and men with persistent thymus glands succumb to small amounts of this drug. Further, the theory of hyperthymization is substantiated by the findings in Basedow's disease.

Wiesel holds that the hypoplasia of the chromaffin system found in status lymphaticus is responsible for a diminution in the tonicity of the vessel walls and cardiac muscle. Thus sudden death from arterial and cardiac atony and dilatation may occur.

#### MODE OF DEATH.

In the cases of death during anæsthesia collected by McCardie, that observer reports that death always occurred suddenly. "In certain cases facial pallor and dilated pupils were first noticed, and then it was found that cardiac action had stopped. In others respiration was observed to become superficial and intermittent, and at the same time the pulse was impalpable; in others cyanosis first appeared together with dyspnœa, the circulation quickly failing afterwards. In another type of case there was a sudden failure of circulation and respiration, apparently simultaneously." The heart and right ventricle

were usually found dilated. The ages of the cases in McCardie's series varied from six months to fifty-five years.

#### DIAGNOSIS OF STATUS LYMPHATICUS.

It is a deplorable fact that none of the cases of status lymphaticus, dying under anæsthesia, have been diagnosticated before autopsy; yet the diagnosis can undoubtedly be made if the condition is borne in mind, and the patient properly examined.

Status lymphaticus should be suspected in an individual who gives a history of one or more sudden unexplained deaths in other members of his family. Hedinger reported the sudden deaths of five children in one family, before they reached the age of six. Autopsy on one of them showed a large thymus and status lymphaticus.

Individuals with status lymphaticus often have a pasty skin, a large amount of subcutaneous fat, and may show evidences of old or recent rickets (Conner). There is a general rotundity of the limbs, which is very characteristic, and which was noted in case four of this series. Adults often show an absence or scanty condition of the axillary and pubic hairs, which, together with the hair of the head, may have a peculiar dry, brittle character. In adults signs of infantilism may be present, characterized by small external genitals or an infantile uterus.

There is generally an enlargement of the external lymphatic glands, axillary, cervical and inguinal, accompanied by hyperplasia of the faucial, pharyngeal and lingual tonsils. The spleen may also be enlarged and palpable.

McCardie states that "signs of low blood pressure may be associated, *e. g.*, pupils comparatively large, a low tension pulse, heart sounds thin and flabby, giving one the idea of thin-walled, dilated cavities and of small muscular power." If the blood pressure is low, it can be detected by the Janeway sphygmomanometer. A finding of a lymphocytosis or diminution of the hæmoglobin of the blood would aid in the diagnosis.

*Inspection* of the chest may possibly show a pulsating tumor above the sternum, when the thymus is greatly enlarged, or this tumor may be palpated by the finger of the examiner.

#### PERCUSSION.

Light percussion with the finger should be employed. Warthin says. "The area of thymic dullness is triangular, with unequal sides, the base at the level of the sterno-clavicular articulations, and the blunt apex behind the second intercostal space or the upper part of the third rib. The side boundaries extend somewhat beyond the sternal lines, usually more to the left than to the right. An area of dullness extending more than one centimeter

beyond the sternal lines may be taken as evidence of an enlarged thymus."

In a case of thymic asthma, during the attack, we obtain the picture of a child suffering from inspiratory dyspnoea. The respiration is noisy and stridorous in character. There is retraction of the supra-clavicular and intercostal spaces. The child is very restless and perhaps cyanosed. No history of a diphtheritic infection is obtainable. Examination of the larynx is negative, but tracheal stenosis is demonstrable by a long tracheoscopic tube (Jackson).

The most certain and only reliable method of diagnosis is radiography. Warthin states "that the radiogram of the normal thorax of an infant shows in the median line a flask-shaped shadow having a narrow neck and plump body, the neck portion of the shadow reaching from the first or second dorsal vertebra to the fifth or sixth. The body of the flask corresponds to the cardiac shadow, while the neck shadow—the lateral boundaries of which only slightly exceed those of the vertebra—is the shadow of the thymus and great vessels. Under pathological conditions, *i. e.*, with hypertrophy of the thymus, the neck portion of the shadow broadens." Warthin has well shown this by radiograms.

#### RESUMÉ.

1. The thymus gland is probably an epithelial organ with an internal secretion.
2. The diagnosis of status lymphaticus as a cause of death is made too frequently. Hammar's statistics show that the thymus gland is normally much larger than is generally supposed.
3. Mechanical tracheo-stenosis undoubtedly exists as a cause of death in rare instances.
4. The usual cause of death in status lymphaticus is probably a "hyperthymization" of the organism, which renders it peculiarly susceptible to harmful external influences, such as shock, anæsthetics and infectious disease.
5. The diagnosis of status lymphaticus can undoubtedly be made *intra vitam*. The X-ray offers the most certain and reliable means of determining the presence or absence of an enlarged thymus gland.

6. If status lymphaticus exists, chloroform is the most dangerous anæsthetic.

The following is a list of some of the more important articles on the subject:

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ADAMI AND NICHOLS. *Principles of Pathology*. Vol. II, p. 697.

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ROBERTS. *Laryngoscope*, 1908, p. 724.

JACKSON. *Journal American Medical Association*, May 25, 1907.

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VON SURY. *Viertel jahrschrift f. gerichtl. Medizin und öff. Sanitätsw.*, 1908, 3 F, XXXVI, I.

FRIEDJUNG. *Der gegenwärtige Stand des Asthma thymicum und sein Verhältnis zum sogenannten Status lymphaticus. Archiv. f. Kinderheilkunde*, 1900, XXIX.

#### EXPERIMENTAL POLIOMYELITIS.\*

By SIMON FLEXNER, M.D.,

NEW YORK.

Mr. President, Ladies and Gentlemen:

I AM not a member of this society and I regard it, therefore, as a great distinction to be asked to come here and present to you the results of an experimental study into the causation and pathology of epidemic poliomyelitis. You need not be reminded that this state has suffered severely for three years from an epidemic of this disease. I am not very familiar with the extent to which the disease prevailed in this region, but it appeared in Greater New York in 1907 and it reappeared there, but luckily on a less extensive scale in 1909. Up to recently we have had no satisfactory knowledge of the causation of this very destructive disease. Indeed, our ignorance has been so profound that we had no knowledge as to how the poison gained access to the body, and we have, therefore, been unable and are still unable to carry out any efficient prophylaxis against the disease. In other words, the medical profession has been quite as helpless in respect to this disease as has been the laity. The disease has a curious history. Its appearance has been very mysterious in the past and it has usually had its own way. Now, it is to be hoped that we have entered upon an era of knowledge respecting the disease; and it is well to emphasize here in this city, the capital of this state, where the law-makers of the state

\* Read before the Annual Meeting of the Medical Society of the State of New York at Albany, January 25, 1910.

assemble every year, that whatever knowledge we have now secured and are promised in the future, grows out of the fact that animals have been used for experimental purposes for the benefit of the human race in the investigation of this disease.

Until recently it has been a disputed question whether or not poliomyelitis is an infectious disease. That question can now be answered absolutely and with just as much conclusiveness as we can answer respecting tuberculosis. It is an infectious disease. It is caused by a minute micro-organism that has not certainly been seen under the microscope, but yet can be defined and studied as though it were visible. It is still an open question whether poliomyelitis is a contagious disease, and if there is time we can discuss that point with some profit to-day.

In the first place, as you know, poliomyelitis is a disease which prevails chiefly in the earlier years of life, but is by no means limited to childhood. Severe cases of it arise among adults as well as among infants and children.

The seat of the disease is for the most part and in most cases the spinal cord, but the disease also attacks the brain, although less commonly, and it is a mistake to suppose that the lesions are strictly those of an anterior poliomyelitis. Indeed, the disease is not a poliomyelitis at all; its effects are not confined to the gray matter of the spinal cord or the brain, but they are present in the white matter also, and both in the anterior and posterior horns. Properly speaking, therefore, when it affects the cord it is a diffuse myelitis, and when it affects the brain it extends well beyond the gray matter and becomes a diffuse encephalitis.

Now the disease has been transferred to lower animals and it is of the disease in animals I wish especially to speak and from it to draw lessons with respect to the spontaneous disease in the human being.

In 1907 we had at the Rockefeller Institute our first access to cases of poliomyelitis. We were limited in that investigation to spinal fluids, removed by lumbar puncture, and we failed absolutely to convey the disease from human beings by means of this fluid to the lower animals. At that time we had the idea that by using the lower animal that is nearest to man for experimental purposes, namely, the monkey, we might achieve something and we transferred this fluid to the monkey, including its introduction into the central nervous system, but without producing any pathological effect which we could recognize. In other words, our work of 1907 was a failure. We made strenuous efforts to get material from autopsies and did not succeed. The disease reappeared in 1909 in a localized epidemic, chiefly in Brooklyn, and to some extent in the neighborhood of New York, and during the period of a few weeks, during which the epidemic prevailed

Dr. Lewis and I secured specimens of the spinal cords from two children who had died. In one case we got about two inches of the lumbar cord, and in the other we got the entire spinal cord. Both of the cases were relatively acute. One child died on the sixth day of paralysis and the other on the third or fourth day. With that material our experimental work was begun and is being continued at the present time. We had originally the idea of introducing the nervous material directly into the brain in order to bring the virus or poison of the disease into immediate relationship or contact with the central nervous system on the supposition that it would have a better chance to survive there than if it were brought into the circulation or into some other portion of the body. Luckily that idea proved to be well-founded. In the meantime, and during the summer of 1909, there appeared a publication from Vienna to the effect that the introduction of the spinal cord from a case of poliomyelitis into the peritoneal cavity of the monkey produced, after a period of incubation of some days, effects and symptoms in the monkey corresponding with those found in the human being. But the discouraging point of this publication was that the efforts to continue the transfer of this virus from the first monkey to a second one entirely failed. It remained therefore an open question whether what has been produced was merely a transfer of the poison of the disease to the lower animal to which the effects were due, or whether the virus itself had been implanted. The introduction of the intra-cerebral mode of inoculation has removed all difficulties in the way of continuous transfer of the virus from one monkey to another. So the virus from the two cases is being continuously transferred. It is now in the twelfth generation. It has been transferred from animal to animal without break and has passed through a considerable number of monkeys. Apparently the virus can be transferred indefinitely. Thus it has been proven in a relatively short time that epidemic poliomyelitis is an infectious disease and is due to a living virus, because we know of no disease that can be successively transferred through a long series of animals which is not due to a living virus; and therefore, we have a right to assert that the cause of this disease is definitely a micro-organism quite as much as the bacillus of tuberculosis is the cause of tuberculosis.

Now, the effects in the monkey are like those in the human being. After the injection of the virus, which is made through a trephine opening in an etherized animal, and after the animal recovers from the etherization, there is a period varying considerably in length—the shortest time being four days and the longest time thirty-three days—during which the animals appear quite normal. As a rule when the monkeys become sick they become sick very quickly. Within an hour a profound change may occur; and after

one or more additional hours the paralysis develops. In other words, the history of the animal disease reproduces the history of disease in human beings. In some cases the progression is less rapid. The animal seems to be a little unwell. It does not move around as actively as before, and the paralysis comes on twenty-four or forty-eight hours later; so that the two types described in human beings appear in monkeys. The extent, location and degree of the paralysis vary in monkeys as in human beings. The paralysis affects the lower extremities in more than one-half of the cases, while in others there is paralysis affecting the upper extremities and medulla. The paralysis begins in the upper or lower extremities and extends either up or down. When the medulla is involved there is interference with respiration, and death may occur from sudden convulsions. Facial paralysis also occurs, but less often; and in other cases there is mere weakness of muscles and recovery. Still other animals show few symptoms and never become frankly paralyzed, so that it can be stated that the monkeys reproduce the various types of the disease recognized in human beings. Furthermore, the disease in monkeys is highly fatal. In human beings the fatalities vary considerably. In some of the epidemics the mortality has been as high as 30 per cent., but usually it is much lower. In monkeys the mortality of a series of more than 100 animals has approached 50 per cent., so that it is a severe disease in these animals. On the other hand, some of the animals recover after paralysis and a small number escape infection altogether. Those that recover may get entirely well, but if the paralysis is considerable they usually present residues as do human beings.

We have studied this virus in various ways and have made out the class to which it belongs. It is an example of the so-called filterable virus. The organisms constituting it are so small they cannot be resolved under the microscope and are small enough to pass through Berkefeld earthen filters. The organism passes readily through filters that are close enough to keep out all bacteria. It also passes through a Chamberland filter, which is the closest filter known, and through which bacteria will not go at all until after a long time and under great pressure. Hence it must be classed among the filterable viruses of which we now know several causing diseases in animals and at least one other causing a disease in human beings. I should remind you that yellow fever is apparently caused by a virus that is filterable. There is at present no direct mechanical means which will succeed in making these organisms visible. On the other hand, it may be possible to demonstrate them indirectly by means of dark-field illumination, and possibly by means of the ultra-violet rays which we cannot see, but

which these particles will stop, and which affect the photographic plate.

In the course of this study we have also investigated the conditions of resistance of the virus. The virus withstands great cold. It can be kept frozen for many days, nearly two months, without undergoing any diminution in its activity. If permitted to undergo a process of slow autolysis in the nervous tissue, it does not suffer any change that we can recognize. It will stand drying for many days over caustic potash, which renders the spinal cord brittle and dry, without losing its activity. Hence it belongs to the class of highly resistant viruses or organisms that include the virus of rabies and of vaccinia.

We have also studied the question as to whether an animal which has received a successful inoculation, with this virus, and has recovered, is capable of reinoculation. A satisfactory answer to this question will determine whether or not one attack of the disease in man affords immunity. We have ascertained that we cannot reinoculate an animal that has recovered from the disease itself. Of course, since we have only been working with the experimental disease for four months, it must be considered possible that after a lapse of many months, or a year or two, the animals may be subject to reinfection. In this connection it would be interesting to know if any one here present has any knowledge of a person who has suffered from a second attack of epidemic poliomyelitis. From the standpoint of our knowledge of the class of micro-organisms to which this one belongs, it may be predicted that a very strong immunity will be rendered by a single attack of poliomyelitis. The testing of such a prediction would be rather difficult, because luckily, until recent years, we have been spared these epidemics. It appears, however, that they are becoming more frequent, not only in this country, but in Europe, and that epidemics have been more common in the last ten years than in all previous times as far as we can tell.

Now, gentlemen, I am sorry I can say nothing to you concerning a therapy of this condition, because nothing has been accomplished in that particular direction. The subject has been one that has attracted our attention, but I can offer nothing at the present time in the way of treatment.

I wish I could tell you something definite concerning the way in which this virus gets into and out of the body, but our knowledge on this point is still very fragmentary and it will have to be increased before we can institute proper measures of prevention of the disease. One or two facts are of importance in this regard. We have no evidence that any of the filterable viruses live a saprophytic existence, but the viruses have thus far been found only in connection with animals which have been diseased or which acted as passive carriers of the infection in the manner of

bacteria carriers. In other words, we know nothing of this virus in nature apart from its host, through which infection can take place. The probabilities are that it will be discovered not only in connection with persons who suffer from poliomyelitis, but who are passive carriers of the disease. Wickman's study of the Swedish epidemic indicated that this kind of double transportation of the disease directly by contact and indirectly from carriers occurs. In recent years the further idea has been gaining ground that epidemic poliomyelitis is a contagious disease, and bears some relationship in respect to its prevalence to epidemic cerebro-spinal meningitis. I wish now to state that it is not improbable that the mode of entrance and exit of this poison may be the same as the mode of entrance and exit of the poison which causes epidemic cerebro-spinal meningitis, and the two diseases may be disseminated in much the same way. It is true that they appear at different seasons. Epidemic poliomyelitis reaches its height at mid-summer, and epidemic cerebro-spinal meningitis its height in the late winter and early spring, but they sometimes overlap or succeed each other by short intervals, and hence the two diseases have been confused one with the other. In the case of epidemic cerebro-spinal meningitis the infection takes place probably in a great majority of cases through the naso-pharynx. The evidence for this fact is found in the presence of diplococcus intracellularis in the naso-pharynx, not only in those who suffer from the disease, but in those who act as carriers of it. The diplococcus gains entrance into the naso-pharynx from other patients through ordinary modes of contamination with the secretions, and in addition, in those suffering from epidemic meningitis, there is reason to believe that contamination of the naso-pharynx occurs from the meninges through the cribriform plate. It is for this reason that a person suffering from epidemic cerebro-spinal meningitis so often shows the diplococci in his nose. There is little doubt that the diplococci enter there and make their way to the pia arachnoid and it has now been shown that they can pursue the reverse path and reach the nasal mucosa. This is a difficult thing to prove in the human being, but we have shown that if the diplococci are injected into the lower part of the lumbar cord in monkeys that they find their way into the nasal mucosa. If this path can be traversed in the monkeys, surely it can be followed in man.

Now as regards poliomyelitis, there are changes in the cerebro-spinal fluid of the monkeys which develop epidemic poliomyelitis after inoculation. The fluid is slightly opalescent, contains an excess of lymphocytes, and at the height of the paralysis may undergo spontaneous coagulation. The virus has been demonstrated in the fluid, and we have found that when the virus is injected

into the spinal membranes by lumbar puncture, infection takes place and paralysis results.

Hence it appears that the membranes of the brain and cord may both contain and transmit the virus to the nervous tissues. Furthermore, we have ascertained that the naso-pharyngeal mucosa contains, at times, the virus and a filtrate prepared from it will transmit the paralysis. To that extent the chain of evidence is complete.

There is an important practical suggestion contained in this fact which I would like to present to you: In the absence of other knowledge more convincing as to the mode of spreading the disease, I think it would be for the present a safe plan to look upon the naso-pharynx as that part of the body most concerned in disseminating the virus of poliomyelitis, and to secure protection from it by employing isolation and other measures in dealing with epidemic poliomyelitis, as is now done with cerebro-spinal meningitis. In the absence of any efficient mode of treatment of poliomyelitis protection must be secured entirely through preventive measures. Whether the experimental studies here summarized will lead to progress in the therapeutics of the disease cannot now be stated.

#### DISCUSSION.

DR. MARK RICHARDS CRAIN, Rutland, Vt. (by invitation): My experience in poliomyelitis is limited to sporadic cases which occurred in the year 1895, when in Rutland, Vt., we had an epidemic which at that time was not reported. The President of the State Board of Health of Vermont at that time collected 144 cases; probably some cases were not reported. I only saw the late results in these cases. I recollect one case of a father and mother who had only one child and they were very much alarmed and sent the child away. The child was four or five years of age. They kept the child away until the epidemic subsided. Then the boy returned and he was taken with the disease. He was badly crippled in one leg, but otherwise was in good health. He is now a healthy young man. I thought it was simply a case in which the disease was limited to the anterior horns of the cord, but I saw many cases in consultation in which I was in doubt from the clinical symptoms as to the nature of the disease. It was an acute infectious disease that I saw and it presented a great variety of symptoms. The death rate was very small. We were unable to get any post-mortem examinations. There were several cases that died with marked cerebral symptoms. One case I have in mind had strabismus, and another case, a child, became feeble-minded after an attack of the disease. I saw one or two cases that ran quite a high temperature.

I have been very much interested in Dr. Flexner's remarks in showing that it is an infectious disease and that from our early descriptions and

post-mortems of it that it is a disease of the motor cells and anterior horns of the gray matter.

DR. JOSEPH COLLINS, New York City: My emotions have been so stirred by this remarkable contribution that I can scarcely trust myself to speak on this subject.

One of the greatest ambitions of the medical profession for the past fifty years has been realized and set forth in the message that has just been spoken to us. This is one of the most perilous diseases afflicting the human race, and the discovery of its cause, which we have heard today, is certainly an epoch-making contribution. I saw nearly 600 cases of epidemic poliomyelitis in the epidemic in New York two years ago, and those cases carried home to me everlasting and profound sorrow, and to hear now that the beginning of the end of that disease is at hand, and through the same master mind that has robbed us of the dread of epidemic cerebrospinal meningitis, is surely an occasion which will make this an epochal meeting of the New York State Medical Society.

DR. FLEXNER (closing the discussion): I wish to thank you, Mr. President and gentlemen, and particularly those who have discussed my paper, for their remarks.

### THE VESTIBULAR NERVE IN RELATION TO EQUILIBRIUM AND ITS DISTURBANCES.\*

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**R**ECENT progress in clinical otology and brain surgery, as related more especially to the operative intervention in labyrinthine suppuration and cerebellar abscess has brought with it the need for greater familiarity with the phenomena of balance and, especially, with the significance of their reactions in disease. Much study has of late been devoted to the function of equilibrium and to symptoms of its disturbance, to the anatomical structure and neurology of the sensori-motor apparatus which serves it, consisting of the non-acoustic labyrinth, the vestibular nerve, and cerebellum and the voluntary muscles, notably those for motion of the eyeball. The diagnostic importance of reactions dependent on disease or purposeful irritation of the labyrinth, and the necessity for their differentiation from similar data in affections of the cerebellar cortex or nuclei, have made the subject of balance one of practical medicine as much as of psycho-physics, and the important questions in regard to this function present themselves, as the solutions have in several instances been suggested, in the operating theatre and clinic rather than in the physiological laboratory. For the otolo-

gist and the surgeon, vertigo and nystagmus are significant symptoms of labyrinthine involvement and cerebellar disease, and some definite standard of recognition and interpretation, referable to a basis of physiology, must be supplied if we are to make full use of these disease manifestations and learn from them instead of being confused by them. The study of balance is rendered difficult by a number of factors. It is one of the general functions and senses, and its disturbance is often accompanied by more or less marked anomalies of general consciousness: For the same reason subjective study and experimentation are much less fruitful than in the analysis of such functions as audition or vision. The terminology, too, is by no means settled. Dizziness and vertigo are used interchangeably for a number of different states. The term nystagmus is applied loosely to forms of ocular tremor which are but superficially similar and differ widely in causation, mechanism, and physiological significance. The recognition of a distinct and characteristic type of fixational or equilibrational nystagmus is of prime importance for a thorough understanding of the symptoms of labyrinthine and cerebellar disease; and a knowledge of the teleology, or ultimate cause and purpose, of this reaction will simplify the interpretation of clinical symptoms as well as of functional tests. I shall attempt to explain the physiological function of motion-fixation as the oculo-motor component of balance, to analyze the phenomena attending this reaction, and to apply these data to a study of the labyrinth and the characteristic manifestations of its involvement, nystagmus and vertigo. The starting point in this reasoning is the recognition of nystagmoid fixation and ocular torsion as compensations for objective, external, motion and inclination, just as the various characteristic head-and-trunk-motions may be considered as corrections for subjective dis-equilibrium and rotation, actual or apparent. Biology teaches us that there is present in even simple organisms an instinctive tendency to assume certain definite positions in response to cosmic influences, such as gravity, heat and light, and so on. While these tropisms, with the nerve-muscle apparatus mediating them, are comparatively simple in lower forms, we note, in ascending the animal scale, an increasing complexity of function and organ. The result is in every case, however, to insure an optimum position for the organism in question. This position of automatic selection varies in different genera according to structure and purpose, but it is in all probability one in which there results the most harmonious and symmetrical innervation, sensory and motor. With the differentiation of head and trunk, ventral and dorsal aspect, and the final evolution of the erect position in man, the reaction, which we may now designate as balance, becomes most highly organized, delicate and accurate, and while still essentially

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automatic, is greatly modified by psychical control. What was in lower forms of life a simple motor response to equally simple sensations of heat, cold, and the earth's pull, becomes in man a complex function having components in every one of the special senses, manifesting itself by complicated but typical somatic reactions, sensory as well as motor, and attended with definite concepts of direction, motion, and position. The illusion of unbalance or rotation, which we call vertigo, may be caused not only, as in lower organisms, by gross changes or irritation, but by slight discrepancies in various sensory impressions, and even more, by an incorrect interpretation by psychical processes, an inco-ordination of sensations. The influence of this mental factor in dizziness is attested by numerous experiments and the experience of daily life. In accordance with the composite nature of the illusion we note its correction or modification by changes in any one sensory component, as vision, or tactile sense, or muscle sensations, or labyrinthine stimuli. On the other hand, sensory anomalies of a single kind may cause marked subjective disturbance if not accompanied by the usual concomitant and associated impressions. From the standpoint of physiological psychology dizziness may be summarized as an illusion of dis-equilibrium due to an inco-ordination of impressions of motion, position, or direction, and may or may not result in loss of balance. Conversely, loss of balance, rapid and excessive rotation, and similar mechanical influences cause actual dizziness only when the resulting impressions of motion, subjective or objective, cease to correspond with those emanating from other sense organs, or can no longer be reconciled or interpreted by the psyche. This appreciation and judgment of motion and position is acquired and formed under, and ever largely guided by, visual impressions and by impressions of eye position and motion in fixation, whether actual and present, subconsciously remembered, or even only intended. The sense of reciprocal relation of the organism to external objects and the totality of ideal space depends, as much, in all probability, on local sensations incident to fixation, and their systematic and habitual co-ordination in the mind, as on purely visual ideas. We judge of position, direction, and relation to the vertical in external objects by the habitual and mainly unconscious position of our own head and eyes, and an unusual position affects our judgment of spatial percepts markedly. As in body positions and reactions, the "tropisms" to which we have referred, the typical eye-and head-positions taken in response to external visual impressions aim at an optimum position of correspondence in verticality, which up to a certain point is automatically insured by torsion movements of the eye-ball (inclination of the corneal and retinal meridians by rotation about the antero-posterior axis), with a maximum sav-

ing and symmetry of innervation. The ideal result, physiologically speaking, is macular fixation, *i. e.*, a maximum of clear vision, in the median horizontal plane. For objects in motion this fixation position must evidently and of necessity alternate with periods of readjustment of the line of sight, and it has been shown, curiously enough, that during this motion of readjustment or aiming, for which the Germans use the significant term of "Einstellung," there is no clear vision. It is only when the eye, after an almost inconceivably short but accurately measurable space of time, again rests on and fixes the object of regard, that vision is exercised with accuracy. In the case of objects in successive, regular motion, real or apparent, as in troops marching by us or a row of stationary objects viewed from a carousel or car window, respectively, the eye movements, too, become regular and co-ordinated. We note, first, a marked directional factor in the gaze which is carried toward the source of moving objects in the external world, or, what corresponds to this quite logically in subjectivity, in the direction of sensed motion or rotation of the individual. An object is picked up by the eye, followed to and somewhat beyond the point of median fixation, then dropped as it recedes in its backward course, and exchanged, by a forward leap, for its rapidly approaching successor. This forward aiming or recovery leap or twitch is rapid, while the fixing tonus or swing is more or less slow, depending, mainly but not entirely, on the rate of motion of the objects fixed. The intensity of this double eye motion is greatly diminished, or on the other hand, increased by the addition to it of voluntary associated eye movements. Concentration of fixation on objects at the extreme limit of the fixation field, toward the source of motion, as in looking toward the locomotive, greatly increases the excursions of the rapid aiming leap, while the eye, as a necessary result remains in contact for a longer time with the objects fixed, before they have passed very far beyond the limits of central fixation, and thus also lengthens the gazing swing. Looking in the opposite direction, *i. e.*, toward the rear end of the train, diminishes rate and amount of eye movement for quite analogous reasons. The eye muscles consciously employed in this modified experiment are simply the synergists in one case and the antagonists in the other, of those unconsciously innervated in fixation of moving objects. The sensations of rate and degree of motion in the external world, are, as we will recollect, modified in exactly the same way, so that when we come to look directly back along the track there is little or no apparent motion or change of position. The telegraph poles and trees merely become "fine by degrees and beautifully less," and are kept under visual control with little or no oscillation of the eye-ball. The characteristic form of oculo-motor adjustment and co-ordina-

tion just described is practically a fixation clonus, and absolutely identical, except in its elicitation in response to visual stimuli, with what clinicians know as nystagmus or nystagmoid twitch. We shall see that this reaction may be caused not only by purely optical impressions of external motion, but by subjective sensations, due to rotation, as well. It now remains for us to show how this non-visual reaction is mediated, and to describe the apparatus which serves for the sensation, recognition, and measurement of subjective motion, and, indirectly, for the resulting fixational reaction. Our present views of the function of equilibrium have been largely influenced by study of the labyrinth, and to this organ physiology of the present day attributes a most important part in the perception of balance and in the control of reflexes serving, in the widest sense, to preserve it. While the animal experiments indicating a non-acoustic, equilibrational function of the labyrinth date back nearly a hundred years, it is only within the last generation that a uniform basis of interpretation has been supplied by the hydro-dynamic theory (Breuer-Mach and Crum Brown) of the semi-circular canals, and the recognition of gravity as the adequate stimulus of the so-called static labyrinth. It is worthy of note that the most recent and authoritative summary of the functions of the labyrinth, that of v. Cyon, claims for this organ, besides its well-known reaction to inclination and rotation, a definite, decided, and very important subjection to acoustic stimuli. This author claims that the fine adjustment of all motor processes is automatically controlled and regulated by inhibitory impulses originating in the labyrinth and having as their physiological stimuli not only the irregular, interrupted, and variable sounds and tones of the outer world, but the rhythmic, continuous and harmonious tone sensations produced within the organism by speech, pulse and respiration, as well as by the muscle contractions themselves, notably those of the eye-ball.

The terminals of the vestibular nerve in the labyrinth are arranged in two groups, differing markedly in location and function. In the vestibule proper, we have two sensory ridges, the acoustic, or better, static maculæ, which in the erect position of the head run, approximately, horizontally and vertically. The sensory hairs covering these ridges bear a mass of fine concretions, the oto-liths or stato-liths, which serve the purpose of a plummet or lead-bob, and that of a governor as well, and are influenced by gravity exclusively, but in various degrees as the head is inclined in one direction or another. The alterations in stress correspond to definite alterations in subjective sensations of balance and inclination and in the apparent verticality of external objects, and are followed, up to a certain point, by equally fine and definite adjustments of the meridians of the eye, by means of the torsion

movements already referred to, for the purpose of retaining, as far as possible, their verticality and with this their habitual relation, in this respect at least, to objects in space. Experiments on the static labyrinth alone, to the exclusion of all other end organs, are almost impossible mechanically, and as disease limited to these structures is extremely rare, our knowledge of their functions is still incomplete.

The second group of end organs, that of the dynamic labyrinth, is located in the ampullæ of the three semi-circular canals, on either side. Passing over the well-known details of regional and structural anatomy, we note the arrangement of these six canals in three groups, one horizontal, the other two vertical, and at right angles to one another; the two external, horizontal canals lying in approximately parallel planes, as do the anterior-superior canal of one side, and the posterior-inferior, of the other. Note again that the ampullæ of any associated pair are at opposite ends of their respective canals. The significance of this arrangement will appear later on, when we have considered the factor of endolymph motion or stress as an adequate physiological stimulus for the nerve terminals in the ampullæ. We shall also see how the individual reaction of each member of an associated pair to motion in a single direction has been made use of in clinical tests of labyrinthine function. The sensory terminals in the ampullæ project in the form of a cupula into the lumen of the canal and are surrounded by endolymph. Rotation, passive or active, causes a flow or, at least, a stress in the column of endolymph which tends to deflect the terminal cupula and irritate the sensory hairs which are merged in it. The current may be limited to the horizontal canals alone, or to two associated vertical canals, when the axis of rotation corresponds exactly with that of a single set, but in other cases there is an aliquot apportionment, as it were, with a resultant combined irritation and consequent sensation. Motion of endolymph toward the ampullæ, *i. e.*, in the long arm of the canal, naturally produces a more marked irritation than a contrary current, away from it. Accordingly, in any rotation in the exact axis of a canal set we have strong sensation of subjective motion in one labyrinth, which under normal conditions entirely eclipses the weak sensation from the other side and produces a single and uniform motor reaction. With complete loss of function of one ampullar terminal, however, the usually negligible component in the opposite labyrinth may assert itself and become manifest, producing in its turn a definite motor reaction which under usual conditions escapes observation. The irritation of the terminal elements is, naturally, most marked and the resulting sensation of rotation most decided at the beginning of endolymph circulation when the stress of the column of fluid and its friction against the canal wall are great-



est. Under the influence of momentum these factors tend to become equalized and the result, mechanically as well as physiologically, is comparative rest. If rotation is sufficiently rapid the sensation of turning disappears entirely. As soon as it is interrupted, however, the factor of inertia again asserts itself. The column of fluid which was set in motion continues to circulate for a time while the canal, and with it the sensory terminals in the ampullæ, are now actually at rest, and the result is again as at the beginning of rotation, a decided stress and a consequent irritation of the terminals by a reverse stream. The resulting sensation is that of subjective motion in a direction directly opposite to that previously felt and a corresponding oculo-motor reaction, but we must bear in mind that this sensation is an illusion, as there is no motion of the subject or of his canal. It is this illusion to which all of us have been subjected after rapid turning, as in the dance, when we stop suddenly. The vertigo is sensed as a reverse of the previous turning and a violent though sub-conscious effort at correction by muscular effort, which extends to the trunk and extremities tends to throw the body in the direction of its previous rotation. This gives the impression that the rotation itself were being kept up *vi inertiae*, as if the body could not stop, but this is demonstrably not the case, for the same reaction, precisely, takes place when we are seated. The oculo-motor reactions, to which reference has repeatedly been made, may now be considered. The irritation of a single canal produces a deviation of the globe, and necessarily of the line of sight, toward the ampulla of that canal, thus, to the right when the external canal is irritated on the right side, and so on. This deviation corresponds to the accompanying sensation of right rotation, and also to the impulse of fixation of objects moving in regular succession in the external world which would naturally first appear and originate, as it were, in the extreme right of the fixational and visual field. The correspondence of the phenomena of rotational nystagmus, for this is what we have described, with the physiological fixation clonus is complete both in anatomical and neurological basis, mode of innervation, purpose, function, resulting sensation and interpretation. This correspondence extends even to the factor of volitional control and the intensification and moderation, by conscious eye motion, of the automatic reaction. Looking toward the irritated canal increases, and looking away from it diminishes, the rate of excursions of the globe and the evident intensity of the nystagmus, and what is almost as striking, not only affects the apparent sensations of motion, as in the purely visual form but intensifies or diminishes the eventually resulting dizziness, as well.\*

\* There is by no means a consensus as to the relation, as cause and effect, between dizziness sensations and muscular reactions, notably nystagmus. That visual vertigo is due to the nystagmus which accompanies it, as Purkinje claimed, is disproven, first by

This fact, too, has been taken advantage of by clinical otology, which makes use of voluntary deviations of the globe to elicit or to accentuate degrees of symptomatic nystagmus which would otherwise not be appreciable.

We must now turn our attention to the nerve paths and to the central organ in which these impulses are received, gathered and co-ordinated to be translated into definite innervation reactions and sent out to the motor end organs.

The vestibular nerve, the anterior or medial root of the eighth, has its origin in the upper portion of the medulla and the lower section of the pons, traverse the mass of the medulla and at the inner side of the restiform body, and reaches its terminal nucleus on the floor of the fourth ventricle. Like the dorsal roots of spinal nerves, the vestibular with the cochlear nerve originate in peripheral ganglia, the vestibular ganglion of Scarpa, and the spiral ganglion of the cochlea, respectively. Little is known as to the central distribution of the vestibular nerve, but that it is mainly cerebellar may be assumed on the evidence before us. That the function of the vestibular nerve is equilibrational mainly, if not exclusively, was shown by the earliest experiments, notably those of Flourens, in which lesions or destruction of the semi-circular canals were followed by specific and characteristic motor disturbances without loss of hearing, while destruction of the cochlea was followed by complete deafness, uncomplicated by anomalies of balance or muscle tone. Recent investigations of Hensen and of Piper seem to show that the vestibular nerve may be stimulated by acoustic vibrations—tone—and that the trunk of this nerve may serve to mediate additional impressions.

We may then sum up the non-acoustic functions of the labyrinth with the statement that we have in the vestibule an organ indicating alterations in verticality and thus serving indirectly to regulate muscle tone, while giving rise directly to

the occurrence of severe visual dizziness, as by prisms, without nystagmus, and, in any case, would be confusing, mistaking a symptom with a cause. It seems to me more logical to consider nystagmus as a compensatory reaction, having as a purpose the correction of visual impressions, notably those of position and motion, as much, at least, as a correction for actual alteration of subjective position. The fact that rotational vertigo is checked by blinding or blindfolding animals on the turn-table, which has been adduced in support of Purkinje's theory, seems to me open to a much simpler and more rational interpretation. With eyes closed the animal has a sensation of actual or supposed turning, the latter after rotation has ceased or its rate has been altered. As long as the eyes are closed this sensation is not contradicted by other impressions. As soon as the eyes are opened, the sensation of external motion which invariably accompanies rotation is presented to consciousness by the eye. The discrepancy between this group of impressions and those of subjective motion, which latter are now found to be unfounded and are accordingly externalized, results in a contrary—sensory—innervation and inco-ordination of impressions, and dizziness immediately follows. The nystagmus which is then observed is a very definite, intelligible attempt to maintain, or rather to regain equilibrium by a support in the external world, such as is habitually and sub-consciously obtained by fixation. Deaf mutes, as is well known, are subject neither to rotational or galvanic vertigo, but they have very definite, and as far as we know, normal sensations of rotation, with the usual nystagmoid reaction. As a further argument against the causation of dizziness by nystagmus we may cite the clinical evidence of numerous cases of nystagmus without dizziness, and the observation of dizziness in the vertical plane with somersault movement, which would have to have a vertical nystagmus, which has never been observed in these cases to explain them.

largely sub-conscious, cerebellar, sensations of position and balance. In the semi-circular canals we have a similar sensory apparatus for the recognition and estimation of angular motion of the head and indirectly of the entire organism, and may assume in the dynamic as in the static labyrinth, an indirect regulation of muscle action and tension (in rate, force and degree) via the cerebellum, which is expressed in the uniform and characteristic reactions of fixation, head rotation, and body turning. It is at least doubtful whether there is any formation of motion or position concepts in the cerebellar cortex, and Nagel thinks it likely that the impressions arising there as a result of labyrinthine stimulation are merely those of innervation states. These latter it is which are communicated to the cerebrum and are there co-ordinated and rise into consciousness as concepts of position, balance, or motion. It is undoubtedly one of the offices of the labyrinth, as Nagel has said, to maintain the balance of the body in various positions of rest, as well as during locomotion. Its activity in this connection consists in mediating sensations of position and motion and in eliciting the reflexes which are necessary for the preservation of balance. But the latter particularly are by no means peculiar to the labyrinth which, in this respect, always works in accord or relation with the organs of muscle-sense. Every disturbance of balance in inclination to the side causes anomalies of tension sensation in the muscles, tendons, fascia, articulations and skin which stimulate the centripetal nerves of these structures and thus contribute reflexly to the elicitation of counter movements supported, it is true, by the labyrinth. This participation of the labyrinth under normal conditions of equilibrium and orientation to verticality is expressed in Ewald's reflex regulation of muscle tonus. The labyrinth being set in action by changes in position which imperil balance, as in falling, acts automatically to preserve it by increasing the tonus of muscles which work against the fall. The eye motions accompanying these compensatory movements are to be considered, according to Ewald, as a special instance of reflex corrections of posture which are common to a large part of the body muscles.

The membranous labyrinth with the terminals of the vestibular branch of the eighth nerve forms a delicate sensory apparatus which represents, phylogenetically, the first step in the differentiation and perfection of the original cutaneous sensibility. In common with the muscle-sense it serves a valuable purpose as an indicator of alterations in position of the body and of variations in degree of muscle contraction, rate, and power. It thus acquires a special importance as the sensory component in regulation of muscle tonus by

the cerebellum, but it is not advisable to distinguish this special instance of a general function as labyrinth tonus or tonus labyrinth.\*

### CASE OF TRAUMATIC OESOPHAGEAL STRICTURE IN A TWO-YEAR-OLD CHILD, WITH RADIOGRAPH.†

By GEORGE W. ROSS, 'M. D.

PORT EWEN, N. Y.

**C**ICATRICAL strictures are commonly a late effect of swallowing caustic fluids, a sloughing surface results, followed by the formation of scar tissue, the gradual condensation or contraction of which produces the stenosis. Weeks and even months in some cases may elapse before obstruction appears.

The accidental or intentional swallowing of caustic is the most common cause of cicatricial stricture of the œsophagus. Next in frequency are foreign bodies long impacted, and finally, tubercular or syphilitic and other ulcers.

These strictures are dense and unyielding, especially if deep, and involve the muscular walls. They naturally tend to contract indefinitely.

The first and most important symptom of œsophageal stenosis is interference with deglutition. The gradually increasing inability to swallow is usually caused by the slow contraction of the cicatrices. Difficulty in swallowing may come on quickly from wounds or escharotics as the immediate result of these injuries. The dysphagia of permanent organic stenosis develops slowly. When the obstruction is so great that the patient suffers from insufficient food the signs of malnutrition appear.

Usually there is no difficulty in making a diagnosis of cicatricial stricture, as the history of mechanical injury or the swallowing of a corrosive fluid makes clear the nature of the case.

The prognosis is good if the stricture can be dilated enough for nutrition to be maintained successfully. If the œsophagus is practically obliterated in more or less of its course, the patient's future depends upon operations in themselves hazardous. If there is extensive dilatation above the firmly contracted cicatricial stricture, the prognosis is serious.

The preventative treatment of cicatricial stenosis. Even if no signs of stenosis appear, the systematic introduction of an œsophageal bougie should be begun within about two weeks after the accident of swallowing the caustic fluid. At

\* The observations and experiments of Lange and Stefani would show that the labyrinth does not act on tonus and indirectly on preservation of balance solely by way of the cerebellum, as the phenomena following lesion of the semi-circular canals are observed in animals deprived of cerebellum; nor on the other hand does the cerebellum receive tonic and balance-regulating stimuli, as we know quite well, from the labyrinth alone. The last conclusion is fortified by the fact that motor disturbances which have been caused by labyrinthine lesions and have disappeared in the course of time, may be incited anew by removal of the cerebellar hemispheres.

† Read before the Third District Branch of the Medical Society of the State of New York, at Hudson, N. Y., October 5, 1909.

first the bougie should be passed daily, later weekly, and at longer intervals. When stenosis has already occurred gradual dilatation is employed when it is possible; by means of the passage of bougies using a larger one each day, or every other day until the largest one possible is to be passed at longer and regular intervals; to prevent recurrence as the tendency is to contraction and recurrence. The bougie should be left in position for several minutes.

In cases where the above methods fail, Abbe's method of treatment is employed consisting in performing a gastrotomy and passing one end of a heavy braided silk string from the opening in the stomach through the œsophagus and out of the mouth by means of some small instrument that will pass the stricture.

The string is then made tense and drawn rapidly back and forth until the stricture is divided. The gastrotomy wound is then closed. Recurrence is prevented by the frequent introduction of œsophageal bougies. There are other operations which I will not mention in this paper.

Intractable strictures require the establishment of an œsophageal fistula in the cervical region if they are situated high up, or gastrotomy.

The following case, which I will report, is Miss C. E. age two years. Her present illness dates from June 25, 1909. While playing with some other children making mud-pies, C. E. was sent to get some water with which to continue the pie making. Finding a tin can which had contained Babbitt's Lye, she filled the can with water and returned with it to the other children.

After using some of the water the can was set aside. Our patient being thirsty drank of this water, now thoroughly saturated with the lye, which had been left in the can.

The solution being very caustic burned patient's mouth and lips also œsophagus and stomach.

A physician was called who attended patient about ten days, her condition being, apparently, much improved.

On July 10th, this being sixteen days after the accident, I was called to see patient who was now unable to swallow anything whatever. She would take one or two mouthfuls of milk or water which she would try to swallow, filling the already dilated œsophagus to the stricture and regurgitate it. Patient showed signs of considerable emaciation and very weak.

Finding I had a stricture of the œsophagus, which might prove to be impenetrable, the patient was taken to the Albany Hospital, where at first it was impossible to pass even the smallest bougie. Following suggestions of Dr. H. L. K. Shaw, that the X-ray might be of value in this case. Dr. Holding, who has charge of the X-ray work at the hospital was notified and took the picture.

With the patient under the influence of chloroform, a stomach tube was inserted as far as possible into the œsophagus, and then a thick watery solution of subnitrate of bismuth was forced in as the tube was gradually withdrawn. The picture was then taken.



The picture will show for itself the value of the X-ray in these cases, as it gives precisely the location of the stricture, the dilatation of the œsophagus above it, and the gradual tapering of the œsophagus to a point below.

After the above procedure it was possible to pass a small bougie. Following this, bougies of gradually increasing sizes have been passed, at first every day; later, every two or three days; until now I am passing a No. 26, once a week.

The patient is now able to swallow very well; has gained considerable in weight and is doing very nicely.

## THE SANITATION OF SUMMER RESORTS.\*

By C. E. LOW, M.D.,  
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THE summer vacation, or recreation for those who have no regular employment to vacate, has come to be an institution of pretty general adoption; and while the members of the medical profession are usually in accord as to the desirability of a change of air, scene

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and occupation for all classes of people, it may be safely assumed that the average doctor is not quite doing his part in educating the public to the necessity of exercising some care in the selection of their place of summer recreation.

While he may be consulted about a desirable location for a large percentage of our invalid population who contemplate change of environment, experience would lead to the conclusion that little attention is paid by either laity or profession to the desirability, pro or con, of any given locality with regard to its sanitary circumstances for summer visitors. Nor is it possible that the profession can be cognizant of the sanitary condition of the multitude of summer resorts which offer more or less alluring inducements to the outing public, but it is manifestly its duty to impress upon this public the necessity of sanitary surroundings at most of these resorts, where the personal factor with regard to sanitation is more in evidence than in more thoroughly organized and administered communities.

In fact, is it not this desire for personal freedom from the restraint of highly organized society which impels or necessitates many to seek a change? Indeed, if we were to grant as a fact that all persons who live a more or less primitive camp or cottage life have the interest or desire to promote good sanitary conditions about their temporary abode, what percentage of these have the necessary knowledge or initiative to accomplish such results? Perfect sanitation is even difficult or impossible of complete accomplishment in communities of high average intelligence, where excellent organization and great expense combine to promote it. Is it strange, then, that the individual left to his own resources fails to appreciate the menace he creates for himself or leaves as an inheritance to those who succeed to the occupancy of his locality of temporary domicile?

For those who live in isolated camps or remote cottage communities, it is as important that their abode should be situated with proper regard to the problems of drainage and the admission of light and fresh air as though it were erected in an urban community, else improper surroundings may defeat the very object of its existence. While it is entirely without the compass of this paper to enter into a discussion of the location or architectural design of summer homes, it seems pertinent to remark parenthetically that they should not be immediately surrounded by too much shade, remembering the old adage that "Where sunlight cannot enter the doctor must," and that as most of them have no real cellar the underpinning should be of a suitable character to allow of a free circulation of outside air under the floors, so that the ground air and damp exhalations may not contaminate the living apartments; while the latter in their

turn should be susceptible of admitting quantities of fresh air and sunlight, although capable of excluding the inclemencies of the weather.

As a concrete illustration of the creation of unsanitary conditions let us assume that some individual who is convalescent from typhoid fever or dysentery goes to one of a host of resorts where sanitary conveniences are not good. There he attends upon the call of nature in one of those vile closets where the dejecta accumulates from week to week and from season to season, either on top of, or in a shallow hole in the ground; or perchance if he is tramping in the forest or open, betakes himself to some secluded spot in some gully or near the banks of a stream and in either case leaves a nidus of infective material on the surface of the ground where colony after colony of infective organisms multiply, to be washed later into adjacent springs or streams to continue their existence, and offer a source, perhaps of reinfection to himself, or of primary infection to some casual visitor who follows him and partakes of the contaminated water.

Again, there exist summer cottage communities of considerable size where no attempt is made to collect for disposal either garbage or night soil, and where slops, garbage and all kinds of organic refuse are thrown on top of the ground in close proximity to dwellings, there to slowly decompose and afford a culture media for all sorts of infective bacteria which may chance to inoculate it from natural or human sources. Such are breeding places for typhoid bacteria which may possibly be washed into adjacent water supplies, and also for any of the air-borne bacteria which may be carried from thence to the adjacent residence, to say nothing of the agency of flies as carriers of disease and for whom such conditions afford ideal means of propagation as witnessed by the masses of maggots always found on disturbing such offal.

In connection with flies as disease carriers we should not overlook the ubiquitous mosquito and other biting insects, who in their season also present more or less of menace, particularly about malarial districts. Although almost impossible of extermination they should be measurably controlled by the avoidance of marshy localities or the drainage of them, combined with the use of petroleum sprinkled over the breeding ground to kill the larvæ, while the dwelling, as well as all necessary external water containers, should be efficiently screened to prevent their ingress, and all possible but unnecessary containers of water, like old dishes and cans about the premises, should be destroyed, not only because of their liability to collect foul water but because they often contain decomposing organic refuse.

To those of us who never had our attention called to the fact, it may be something of a revelation to know the amount of waste necessarily

disposed of in our great cities. For instance, in London this waste has been estimated closely for 1,000 people at 260 tons per annum, or over  $2\frac{1}{2}$  tons per person per annum. This estimate, of course, includes all characters of waste, like ashes, papers, cans, etc., as well as sludge, but omits the vast amount of water separated from the sewage in forming the sludge. Pettenkoffer estimates 90 grams of feces and 1,170 grams of urine as the average excrement per diem for men, women and children. This, coupled with a minimum allowance of 159 liters of water for household use, would make a total of 160 liters, or something over 35 gallons of sewage, approximating 280 pounds each day per person. Such wastes would, no doubt, be in excess of those from a summer home community, but it at least serves to impress on us the magnitude of the undertaking. In these communities, there being usually no public organization, each individual suits himself, and the choice of a system of sewage disposal must depend on many contingencies, like possible cost, character of the soil, topographical conditions and water supply, concerning the latter of which more will be said later. Laying aside the question of sewage discharge into natural water courses, which is being more and more justly condemned and regulated by state authorities, there remain two practical methods for private homes or small communities, both of which ultimately depend upon the same principle of slow sub-soil percolation and oxidation.

One method consists in the use of pails or other proper containers under closet seats or sink wastes, and the other method consists in the accumulation and automatic discharge by syphonage at intervals, depending upon the rapidity of accumulation, from a large tank, through extended areas of porous drain tile buried under the soil to a depth of six or eight inches. The pail method, used in part as a dry or earth closet system, offers the advantages of adaptability, effectiveness and low initial cost with the disadvantage of necessary frequent attention to some considerable detail.

In its practical operation as a closet system let us suppose the alternate use of two suitable containers, preferably of galvanized or enameled metal, each one of which is in turn placed under a closet seat, which by choice should be situated in a structure adjacent to the house, and before being placed there for use is partially filled to the depth of about an inch with clean, dry earth, sand or sifted ashes obtained from any convenient receptacle. After this earth is placed sift over it a sprinkling either of what is commercially known as chloride of lime (calcium hypochlorite) or copperas (iron sulphate), and each time the closet is used repeat the sprinkling of dry earth and disinfectant, both in small amounts. Garbage pails, also preferably of gal-

vanized or enameled metal, can be kept sanitary by the same methods; while in the same character of receptacles for slops and sink waste the contents need be only occasionally treated with a disinfectant and deodorizer.

At stated intervals or when full enough to be handled conveniently, these receptacles should be removed and replaced by their alternates, their contents being buried in a series of long, narrow trenches not exceeding ten inches in depth, dispersed at intervals of two or three feet and remote from any source of water supply. It is perhaps best to make here more extended reference to the subject of sub-soil percolation and oxidation heretofore mentioned. The principle involved is, that organic substances, when buried under a few inches of loose earth, are attacked by the earth contained nitrifying bacteria, oxidize, break up into their elements and so completely reunite in other forms that no offensive odors are generated and no culture media is left exposed for the possible propagation of harmful bacteria. If the organic material is in solution or suspension the water rapidly percolates through the loose surface strata of the soil and is dissipated, leaving the finely divided organic material in the most favorable condition for oxidation and destruction. An instance is on record where a relatively small quantity of loose dry ashes was kept housed and after being repeatedly used for several years in a dry closet, remained inoffensive, dry and only had altered in its general character by changing to the color and appearance of "ashes with a slight admixture of garden soil."

The other system, spoken of as automatic discharge at intervals of syphonage, offers the advantage of requiring little attention for long periods when properly installed, allowing the use of inside flushing closets and ordinary methods of inside plumbing; while its disadvantages consist in considerable initial cost and the necessity of a rather abundant water supply for flushing purposes. In its practical operation the ordinary soil pipe is led from the house through a trap to a septic tank, which in turn discharges into a large flush tank, whose size depends on the amount of sewage to be handled, and from which it is in turn discharged automatically and periodically into ordinary sewer pipe, leading to a suitably sized and disposed area of porous drain tile, from which it slowly percolates into the adjoining soil and sub-soil. The flush tank, which also acts as a secondary septic tank, should be of sufficiently large capacity for the entire accumulation of twenty-four hours, at the ratio of thirty-five gallons per person and situated at enough elevation above the level of the porous tile, so that all portions of them may be thoroughly filled and flushed at each discharge.

As the contents of these tanks are constantly

undergoing disintegration and decomposition it is necessary that a suitable vent pipe should be carried to an elevation of eight or ten feet above their top to carry off noxious gases. This vent will also serve as an air relief to permit inflow into otherwise tight receptacles. The syphon outflow should not reach to the bottom of the tank to completely empty it at any one discharge, as any solid portions of its contents which may have washed into it from the septic tank, should remain long enough to disintegrate. From the tank at its outlet an ordinary vitrified drain tile should lead at least twenty-five feet from the house to discharge into the porous tile which are to lead off from the vitrified tile by a cross main and branches disposed about three feet apart, somewhat on the plan of a gridiron. The porous tile should be buried to a depth of six or eight inches from their upper surfaces, and no tight jointing between their ends should be attempted, although it is recommended to place above and below each joint a short section of porous tile formed as the arc of a larger circle than the tile itself, thus affording a secure bed and cap for each joint and preventing the ingress of loose earth when the trenches in which they are placed are filled. These porous tile should be of about two inches inside diameter and be accurately graded on a pitch of about two inches in a hundred feet. If the ground in which they are to be buried is unusually damp it may be necessary to underdrain with other porous tile at a depth of about a foot below the upper trenches. This distributing area, which should be apportioned at about forty lineal feet of the two-inch tile to each person, should be as remote as possible from water sources and if situated among trees, shrubs or arbors, the latter will materially assist in absorbing the moisture and disintegrated organic material and grow luxuriantly. The septic and flushing tanks for this system should be tightly constructed of wood, metal or concrete, and may be installed near the house in an artificial mound or on any elevation suitably screened by bushes.

At this point the question might arise as to what advantage this method of distribution of the sewage to the soil has over the ordinary cesspool, which has been so strongly condemned by sanitary engineers. Cesspools as ordinarily constructed consist of a hole in the ground, loosely stoned up around their circumference and covered over with plank, flat stones or concrete. When new this arrangement serves very well, but after a short time the pores of the immediately surrounding soil become more and more filled with organic matter from the constantly filling reservoir, which being somewhat deeply situated below the ground surface does not allow of sufficiently rapid drying out and oxidation of the contiguous soil and its deposited organic sediments to keep the soil por-

ous, so that fresh supplies of sewage may percolate. In the end the reservoir becomes entirely filled and has to be cleaned out and rebuilt in some new locality. The fact that the bulk of its discharge is far below the loose, porous surface soil and its contained air and nitrifying bacteria, prevents the complete disintegration and oxidation of the organic matters of the sewage, which may, as such, gradually pollute the underground water channels and source of supply.

While with any good sewage disposal system the water supply should be free from contamination, as a precautionary measure it might be wise, where possible, to avoid the use of springs and streams, particularly if the watershed supplying or draining into them is not well protected and known to be free from sources of contamination. As an alternative to their use, where possible, deeply driven tubular wells should afford security, by preventing contamination with surface washings, and by obtaining their supply from such depth as to assure safety.

Aside from the security offered by municipal inspection of milk the supply at the summer camp is as likely to be pure as that obtained elsewhere, if it or the water can be reasonably suspected every one should know of the added security obtained by boiling them. In passing it can do no harm to note that the flat taste imparted to water by boiling, is in a measure due to the fact that its contained air is driven off by the heat, and that this defect after boiling can be at least partially remedied by thoroughly agitating it in a partially filled closed vessel.

It may not be amiss here to remark that all plumbing in summer homes should be of best design and, as elsewhere, kept down to the minimum amount consistent with reasonable accommodation.

In the more remote resorts the evident lack of proper supervision by any health authority recalls again the need of a campaign of education for our ever increasing summer population, and in closing I take the liberty of quoting a pointed editorial paragraph clipped from the July 10th number of the *Saturday Evening Post*, which points to the effort in this direction by at least one body of sanitary officers and to the fact that at least one lay editor appreciates its need. This clipping is entitled, "The Old Oaken Bucket Up-to-Date," and runs as follows:

"It is hard not to think despitely of the city these summer days. It's crowds yearn for the country as a hungry pup at the pantry window. Yet even in mid-summer the country owes the city something. Soon many will flee the dusty streets, committing themselves to nature like tired children to a mother's lap.

"Whereupon the Chicago Health Department issues a bulletin beginning cheerfully as follows: 'It has been the experience of this department that many hundreds of cases of typhoid fever are

brought into the city by people returning from their vacations.' Examine well the milk supply, says the department, for flies may have access to it; above all, test the well water, and if you would be on the safe side, boil it before drinking.

"The country is just as poetical as ever, but the city writes certain useful footnotes to the poetry—as, 'The old oaken bucket, the moss-covered bucket, the iron-bound bucket that hung in the well'—whose contents would poison a horse. Still 'dear to the heart are the scenes of our childhood'; but, thanks to the city, we now know it wasn't right for Dr. Rhubarb to dose us with calomel and quinine, no matter what ailed us."

### THE DUTY OF THE MEDICAL PROFESSION TOWARD THE CANCER PROBLEM.\*

By GILBERT D. GREGOR, M.D.,  
WATERTOWN, N. Y.

IN conformity to the usual custom, it is now my privilege as retiring president to address you on some subject pertaining to our profession. I do this very gladly to-day as it gives me the opportunity of calling your attention to a subject that I believe the profession is neglecting, or, at least, not giving it the prominence that its importance demands, and that is the inauguration of a campaign of education among the laity as to the nature of cancer and its methods of cure. To put the title of my remarks into a concrete form then, it would be: "The Duty of the Medical Profession Toward the Cancer Problem."

That the cancer question is one of the most serious problems that the profession has to face is easily seen by a study of vital statistics. Crile, in his Chicago oration in 1908, said, that one woman out of every eight, after reaching the age of thirty-five, died of cancer, and one man out of every twelve, after reaching the same age, succumbed to this disease.

That if the ratio of prevalence in England, be applied to the population of the United States, there must be at the present moment approximately 80,000 persons suffering from cancer in this country alone. From all sources comes the cry that cancer is increasing in frequency to an alarming extent.

Possibly this increase in frequency is more apparent than real on account of more careful methods of diagnosis, but even admitting this, conservative observers insist that cancer is increasing in frequency. Dr. Charles L. Gibson says, that after twenty years study of cancer, but two facts of value have developed from his experience, the first being that the frequency of cancer is steadily increasing, and, second, the

only treatment of definite value is by removal at an early stage. When we take into consideration the fact that untreated cancer, or cancer treated by any method other than complete removal has a mortality of 100 per cent; that the profession in the past taught that cancer was a constitutional disease and therefore incurable by operation, an opinion still held by some of the profession to-day; that as a result of this teaching, the laity, to a great extent believe that it is an incurable disease and consider a diagnosis of cancer equivalent to a death sentence, does it not seem time that the profession took active steps to inform the public and the unbelieving element of the profession of what has already been accomplished to lessen the frightful mortality of this disease?

Perhaps there is no other disease known to the medical world that is being pursued at the present day with such untiring energy to discover its cause and nature, as cancer. But theories as to the nature of cancer and its cause, whether bacteriological or embryological, whether hereditary, or from some extraneous cause, can well be left to the pathologist, the bacteriologist and the biologist who are devoting their lives to the subject in the hope that some day they will solve the riddle and give us a cure for cancer; but until that day arrives let us, as practical men, utilize to the best advantage the knowledge we already possess. And what is this knowledge to which we have already attained? Simply this: that in its beginning, every cancer is a local disease and therefore is curable if completely removed, and second, that it rapidly spreads from its initial point of invasion and becomes a general disease. If these two propositions could be taught to the general public, what a difference there would be in their attitude toward this cancer question. Now when you make a diagnosis of cancer in a patient it is taken as a sentence of death due to the teachings in the past, and even from certain professional quarters at the present time.

To illustrate this attitude—a few months ago a physician on his way to the hospital, with a patient suffering from cancer of the breast, was advised by a brother practitioner to discourage any operative interference as while it might give some temporary relief, the ultimate outcome would be the same operation or no operation. This physician evidently had not kept track of the progress in operative work along this line. While the elder Gross, after a large experience in removing cancer of the breast, finally reported that he had never had a permanent cure, this is *not the result of the operative work of to-day*. A short time ago, a woman came to my office with a well developed cancer of the breast which she had watched grow for over a year. Some six months prior to her visit to my office she had consulted her family doctor and had been advised a policy of non-interference so long as

\* President's address before the Third Annual Meeting of the Fifth District Branch of the Medical Society of the State of New York, at Watertown, October 14, 1909.

it was giving no trouble and her health was good. It was giving trouble now; hence her appearance in my office. Such advice is still given by members of the profession who cling to the older teaching regarding cancer. Such advice is destructive to human life.

There are a few facts regarding cancer so well developed during the past few years that every physician should teach them to his families in season and out of season as it is important for the early recognition of cancer to have the co-operation of the patient.

These facts which I would have the public know are:

1st. That cancer is a disease of middle life in the majority of cases. That every person of forty enters the cancer period. That from forty to sixty, cancer claims its victims most frequently. That a tumor appearing during this period of life should be considered cancerous until proven something else.

2d. That local irritations are a fruitful source of cancer. An injury to the breast as the exciting cause of cancer of the breast. An old laceration the cause of cancer of the cervix. A gastric ulcer the cause of cancer of the stomach. A carious and jagged tooth a cause of cancer of the tongue and a clay pipe the cause of cancer of the lip. It is remarkable how frequently you can get a history of local irritation as a cause of cancer if you carefully go over the history of each case.

3d. That at the first appearance of cancer, it is invariably by a single growth. We do not have several cancerous growths appearing simultaneously in the same individual. Growths appearing later are secondary deposits from the original growth, and are a later manifestation of the disease.

4th. The spread of the disease is at first centrifugally from the point of origin in every direction. Later, the cancer cells travel along well recognized paths and are deposited in distant portions of the body where they begin the formation of secondary growth histologically similar to the parent growth.

5th. In the beginning of all these cancerous growths, the health of the patient is unimpaired. There is neither pain, soreness nor discomfort. The bodily health is perfect. Here is a stumbling block to the uninitiated. They have a small bunch. It is growing slowly but there is no discomfort attending its presence. The general health was never better, so why interfere with it. It cannot be a cancer, for a cancer is a dreadful disease, causing suffering, loss of flesh and cachexia. We who have to follow the history of cancer from its beginning to its bitter end know that when cancer begins to cause constitutional symptoms or even local discomfort, the favorable time to interfere has passed. This the public should be taught.

If the public had these few facts regarding

cancer; that it was a disease of middle life; that it was at first local; that it began singly, that it spread centrifugally into the surrounding tissue, what would their natural inference be regarding its curability—just what we find to be the case in practice. That it is curable in its early stages by complete removal.

The trouble with the early operators was that they confined their efforts to the removal of the visible or palpable tumor. They did not know that cancer cells could be found in the immediately surrounding tissue—offshoots from the parent growth—which were neither visible or palpable, consequently their operations were incomplete, and as a result of these inadequate operations, the disease rapidly returned at the site of the original growth and there was ultimately a fatal issue to the case. So long as such results were all that surgery could accomplish, is it surprising that the conviction that cancer was a constitutional disease and therefore incurable by surgical means should have become so deeply seated in the minds of those within the profession as well as those outside of it? While the efforts of surgeons to cure this disease are still far from satisfactory, yet something has been accomplished; and there is a chance in certain fields of greater improvement. In fact, there is an opportunity, with the co-operation of the public, of vast improvement along certain lines.

If cancer were a constitutional disease and the tumor merely a local manifestation, then no case could be cured by surgical means; but hundreds of cases suffering from undoubted cancer have remained well after operation for years or have died of some other trouble in no way connected with their former difficulty. Every surgeon throughout the country can point with pride to patients who have remained well after operation. It probably is a fact, however, that his failures are more numerous than his successes, but even so, there is reason for much congratulation, as every success is a brand saved from the burning.

Anesthetics, antiseptics and improved methods of operating are responsible in a measure for the success of the recent operator over his predecessor. But there is a limit to the extent of operations and to the improvement of technique, and it seems that we have about reached that limit at the present time and yet our results are far from satisfactory.

By what method, then, can we further diminish the mortality of this disease? From the fact that cancer has been cured by surgical means and that the percentage of these cures increases the earlier the operation is done gives us the key to the situation. While in the main this statement, that the earlier the operation the more surely curative it is, is true, still there are exceptions. We have all seen cancer of the breast free from secondary deposits after a history of several years—in one of my own cases after seven years. These cases will remain well after



operation even if the operation is not very extensive. Such cases occur in elderly women. On the other hand, we have seen cases with a history of but a few months submit to the most extensive operation possible and yet succumb to a recurrence of the disease within a year. These cases usually occur in young women, the most malignant type occurring during pregnancy or lactation. The same thing occurs in our work with appendicitis. We may do an operation eighteen hours after the beginning of an attack and find it a late operation, and in another case it is an early operation though done the fourth or fifth day of the disease. Despite these exceptions, the rule holds good that the earlier the operation is done after the discovery of the disease the higher percentage of cures are obtained. Following this theory up, the natural deduction is that if we could diagnose cancer early enough and remove it, we could cure every case. In looking over records, I find one series of cases of cancer of the breast that is suggestive of this possibility. They were all cases in so early a stage that an exploratory incision and the microscope were depended upon for diagnosis. There were seventeen cases in the series. Thirteen were alive and free from evidence of recurrence at periods varying from three to fifteen years after operation. Four were dead from causes in no way connected with their cancerous trouble. What a commentary such a series of cases is to the cases the average surgeon sees in his office, where from 5 to 15 per cent. are turned away as totally inoperable. Where 50 per cent. are operable but are unfavorable cases and where the balance of 25 to 40 per cent. gives only a fair prospect of permanent recovery. The wonder is not that we cure so few but that we get such good results as are at present obtained by our tardy operating.

When we come to consider cancer of the uterus, we have a most appalling array of failures to confront us.

Statistics of operations for cure of cancer of the uterus show failures in from 70 to 95 per cent. of the cases, and this is not the worst of it. From 50 to 80 per cent. of the cases presenting themselves to the surgeon for operation are absolutely inoperable, so succumb to the disease; therefore, it can safely be said that 95 per cent. of women with cancer of the uterus succumb to that disease. Now, why is this so? Simply from lack of early diagnosis. Cancer of the uterus is just as curable as cancer of the breast or cancer of the lip, but the diagnosis is not made so early—hence the fatality. Now what can aid us in making an earlier diagnosis? Cancer of the uterus occurs most frequently about the menopause. Somewhere and at some time, the conviction entered the female mind that the change of life must be accompanied by abnormalities in the menstrual function, indicated by irregular

and excessive hemorrhages. This conviction is fostered to a greater or lesser extent by the medical profession, but upon what grounds I have been unable to ascertain. Certainly upon no scientific basis. This erroneous notion is responsible for the lack of early diagnosis in the majority of cases. Let it once be known by the friends of a woman between the age of forty and fifty that she is having excessive menstruation or irregular bleeding, and they will all volunteer the information that it is nothing but the change of life. Even the family doctor may corroborate their opinion and lull the patient into a feeling of security from which there may be a rude and fatal awakening. This is personal experience in many cases. How different would be the results if every physician made it his business to impart the information to his female patients that the menopause was not accompanied by any strange phenomena in the menstrual function, except a gradual cessation. That when excessive menstruation or irregular bleeding did occur it meant something wrong and should be investigated.

While such symptoms might be due to a hemorrhagic endometritis, a uterine polypus, or a submucous fibroid, yet the possibility of it being due to a uterus cancer should be explained to them and the trouble immediately investigated by means of the curette and the microscope. That in this early stage, when the diagnosis could only be made by the microscope, is the favorable time for a permanent cure by operation.

If our patients fully understood that cancer was curable in its early stages and that the first symptom of cancer of the uterus was irregular bleeding, the records for operation would be very different than they are now. However, I believe the outlook hopeful and that this knowledge is already filtering down to the laity, as during the past year I have seen and operated more early cancers of the uterus than during any other similar period in my experience.

When we turn to cancer situated on the surface of the body, as cancer of the lip or skin cancer, the ultimate result of operation is vastly different from that of cancer of the uterus or cancer of the breast. This is mainly due to the fact that such growths are visible blemishes on the body and therefore we are asked to remove them at an early period of their development. Hence, we have permanent cures in such cases of 60 to 70 per cent., as contrasted with a mortality of 95 per cent. in cancer of the uterus. Cancer in the interior of the body gives us a high mortality, mainly due to difficulties in diagnosis. Cancer of the stomach, of the intestines and rectum are all amenable to surgical interference with the same chance of permanent cure if we could but make correct diagnoses in the early stages. Even with the difficulties surrounding an early diagnosis in these locations, successful operations have been done and permanent cures resulted.

With better means of diagnosis and with the more ready consent of the patient to operation, a larger percentage of this class of cases can be saved in the future than has been done in the past.

One of the fortunate circumstances connected with this cancer question is the fact that cancer rarely develops in a region of the body inaccessible to surgical interference. I mean by that, primary cancer. It is a fact that cancer does develop in inaccessible localities, but such cases developing primarily are rare and do not add to the mortality of the disease to any material extent.

The dangers of operation which formerly patients had to face in undergoing operations have now been mainly removed, thanks to aseptic surgery and improvement in technique. Fatal results that do occur at the present day come mainly from delayed operations, attempting to do a too extensive operation upon a patient whose vitality is at a low ebb. The dread of operation is also a factor that is disappearing, due to the acknowledged safety of anesthesia, and the success of antiseptic precautions.

If all these facts were fully understood by the public: that cancer was not in itself an incurable disease, but became so only by delay, but rather a local one and therefore curable in its early stages; that when removed in this early stage the cure was complete and permanent; that cancer rarely develops primarily in regions of the body beyond surgical interference; that operations are comparatively safe and that the suffering is trivial and convalescence rapid; if these facts were known by the public, would they not come to us sooner with their trouble? Now, I believe it the duty of every physician to teach these facts to the families under his care. To talk cancer freely to his patients, to tell them of the hope that lies in early removal and let them understand that it is not the cancer that is incurable, but simply delay that makes it so.

In doing this, he familiarizes the people with the word cancer, and therefore, besides the hope he conveys by his teaching, he robs the word of half its terrors.

We have taken the public into our confidence in teaching them what we know about tuberculosis, and they are ready to aid us in its cure. They have taken hold of the appendix question also, and the family physician now is told, not as formerly to avoid an operation if possible, but that if he thinks there is any danger to have the operation at once before complications occur. So why not have the public take hold of this cancer problem and aid us along the lines we need the most aid; that is, in eliminating delay. With our present knowledge of cancer, there is no other way of improving our statistics except by earlier operation, and early operations will only become the rule when the public become educated

in the early symptoms of cancer and have the courage to act upon that knowledge.

This courage will come with the hope born of the knowledge that cancer is curable in its early stages.

It should be the duty of each one of us to impart this knowledge to the public. They have no other way of acquiring it except through us.

We can do this in several ways—by personal talks with our families—by teaching it to nurses who come in closer contact with our families than we do, and who are often consulted by their female friends, and right here I want to say that it is my conviction that every nurse before she is graduated from a training school should have a fair knowledge of the nature and early symptoms of cancer, so that she may be our ally in our fight against delay in operations. Popular lectures and the public press can also be utilized to disseminate this knowledge. It is not so much how we do it, but let us do it in some way. This, then, is the burden of my plea to you to talk cancer freely because you can talk it hopefully.

#### ACUTE SUPPURATIVE OTITIS MEDIA.\*

By BRADFORD A. RICHARDS, M.D.

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**A**CUTE suppurative otitis media is a disease better defined in text-books than in actual practice.

Authorities have agreed that acute infectious processes in the middle ear, going on to suppuration and perforation of the membrana tympani should be so classified, but suppuration in the middle ear may exist and go on to mastoiditis or other complications, without perforation of the membrana tympani, and as post-mortem examination shows, there is involvement of the mastoid cells in practically all suppurative conditions, but not necessarily leading to abscess formation.

We must therefore abandon the idea that this is a purely local disease and think of it as an infection of the continuous air system of the middle ear, from the mouth of the eustachian tube to the cells in the mastoid process.

The anatomical peculiarities of the tympanic cavity and its relations, are of so much importance in understanding its course and terminations that I will briefly go over the more important facts.

The cavity is irregular in shape, flattened from without inward, and situated in the petrous portion of the temporal bone. Its floor is in relation with the dome of the jugular fossa, and separates the cavity from the jugular bulb by a very thin plate of bone.

This is not always present, and then the floor of the cavity is the wall of the jugular bulb

\* Read at the third annual meeting of the Seventh District Branch of the Medical Society of the State of New York, at Hornell, September 16, 1909.

itself; direct infection of the jugular vein in such a case can be easily imagined, and indeed is not so very uncommon.

The roof is also formed by a very thin plate of bone separating the cavity from the inferior surface of the temporo sphenoidal lobe of the brain.

In front is the carotid artery and entrance of the Eustachian tube.

Behind are the mastoid cells communicating by the antrum itself a large cell, the Fallopian canal containing the facial nerve, and in anomalous cases the lateral sinus may be so far forward as to form part of the posterior boundary, and like the jugular vein may not even have bone interposed. The internal wall separates the middle ear from the internal ear and presents two orifices, the oval and round windows filled in with membranes so thin that it seems miraculous that more infections of the internal auditory apparatus do not occur with its consequent serious results.

The external wall is the membrana tympani and the ring of bone into which it is inserted.

Three small bones cross the cavity in its upper posterior part. The malleus inserted in the membrana tympani, the stapes in the membrane filling the oval window and the incus between articulating with both, serving to transmit vibrations to the auditory apparatus of the inner ear.

The blood supply is copious and anastomoses are found in all directions.

There is especially free anastomosis between the middle and interior, and still more important from a pathological standpoint is the course of venous drainage from the posterior part of the middle ear and antrum into the sigmoid sinus, emptying into that vessel at the knee where it turns backward to become the lateral sinus.

This fact accounts for direct and sometimes very rapid thrombosis seen in this vein.

The mucous membrane lining the cavity is continuous with that lining the Eustachian tube to the nasopharynx and posteriorly continuous though modified to the farthest cell in the mastoid process.

The facial nerve, after leaving its antero-inferior relation with the external semi-circular canal, lies in the bone forming the internal wall of the middle ear until it reaches a point just above the oval window, where it turns inward to its further destination in the internal auditory canal. The bony covering in the middle ear is quite often absent, or there may be dehiscences which leaves the nerve trunk exposed to direct attack in the course of the disease, and this will usually result in a paresis of the muscles of the face on the corresponding side of which the ultimate prognosis is good. Paralysis complete and permanent as a result of an acute process is very rare.

The path of infection is by way of the eustachian tube and its source the nasopharynx.

In pyæmic and allied conditions it may be hæmogenous.

Infection spreads by continuity, by the blood and lymphatic channels. When the middle ear is involved, probably the eustachian tube is already closed by inflammatory exudate.

The exudate in the middle ear, therefore, has no exit and pressure develops, resulting in extension backward to the mastoid cells, and softening and rupture of the membrana tympani. The infectious diseases, especially measles, scarlatina, diphtheria, grippe, typhoid, tuberculosis and syphilis and other more uncommon diseases of this class, external violence of all kinds, resulting in rupture of the drum or of the walls of the middle ear, as in fracture of the skull, nasal operation and unskillful nasal douching are all classed in an etiological relation.

Complications following those middle ear suppurations due to measles, scarlatina, diphtheria and grippe are most common and are most serious.

The streptococcus, pneumococcus, influenza bacillus and mixed infections with any of the above containing staphylococci and more rarely bacillus pyocyaneus vibrios and saprophytes are found in smears taken from acute discharging ears.

Only in the first discharges do we get pure cultures. After a day or two the infection is always mixed, and in the course of a few days the character of infection may change entirely. Those discharges showing the presence of streptococci or pneumococci are in experience more seriously significant and in the presence of indicating symptoms should have weight in deciding on early interference.

The serious complications are more likely to follow in those patients who are in unhealthy surroundings, living poorly and with lack of proper attention, and in those in generally debilitated health from any cause whatever.

The usual manifestations of mucous membrane infection are seen in this disease, pain, congestion, swelling, increased temperature and exudation, together with special conditions resulting from peculiarity of anatomical structure and physiology of the part, especially necrosis of tissue following pressure, and a confined cavity and loss of a certain amount of hearing.

In the early stage of acute suppuration in the middle ear pain is the most prominent symptom and is exceptionally violent in young children.

It is the general experience that it ceases almost immediately following perforation of the drum, whether spontaneous or artificial, with the establishment of free discharge. But in some it continues to be a distressing symptom, and its relief is urgently required.

Generally the perforation (and in these cases it is usually one of the spontaneous variety) will be found too small for free drainage, and a wide incision will relieve the condition. This incision

is preferably made along the posterior margin of the drum from the top to the bottom, a little out.

If relief is not obtained by this procedure there is probably beginning mastoiditis or periostitis of the tympanic walls. Rapidly growing granulations damming back discharge, or too early closure of the initial incision, will prolong pain. Pain may also be unnecessarily prolonged in those cases which would go on to spontaneous rupture in the course of from four to seven days.

Artificial opening is indicated where bulging and signs of pointing are seen, for aside from relieving pain more dangerous complications may be avoided.

As the course of this disease is from ten to twenty days there should be no discharge at the end of this time. A purulent discharge is of better prognostic value than a discharge of a serous or a seropurulent nature.

A very profuse discharge filling the auditory meatus every ten or fifteen minutes, as it often does, indicates mastoid involvement, and usually tenderness, elevation of temperature and other signs will be found.

It is obvious that the better the drainage of discharge and access of curative and cleansing agents to the diseased membrane the shorter will be the course of the disease.

A good, wide incision removal of discharge by syringing whenever necessary with mild, warm antiseptic fluids, and after the first acute period is over politization, are all valuable means to this end, and notwithstanding theoretical warnings of spreading infection they have stood the test of actual practice and are to be recommended.

Reduced hearing is especially seen in the earliest stages before rupture of the drum has taken place and then may be nearly total; but bone conduction is present and the tuning fork tones in the Weber test is lateralized to the diseased side showing obstruction in middle ear conduction.

After rupture of the drum, hearing generally improves and in ordinary cases steadily improves until it again becomes normal; the middle ear should be practiced in all recovering cases until hearing is restored, and if this were systematically carried out there would be fewer deaf or partially deaf persons among us.

In the course of some, especially those resulting from scarlatina and diphtheria, there is infection of the internal ear with exudation of blood and lymph cells of greater or less severity, resulting in damage to the endings of the auditory nerve, or in paotitis, resulting in absolute loss of hearing both by bone and air conduction, an absolutely hopeless condition as to function and dangerous to life, as meningitis frequently complicates.

In the ordinary course of events, after the discharge has ceased the incision or perforation in the drum heals and it regains its normal appearance; but in some, especially in those complicat-

ing diphtheria or scarlatina, there is extensive or even total and permanent loss of tissue.

When the epidermal tissue forming the external layer of the drum grows around the margin of a perforation and invades the middle ear it is practically impossible to restore the loss. Multiple perforations are uncommon and are seen practically in tubercular infections only.

The ossicles may be discharged but it is very rare, and especially so in the case of the stapes. It results in greatly diminished hearing.

Complications not so closely related to the middle ear as those considered are perhaps more important.

In children, especially, the skin may be infected by the irritating discharge, and large areas of an impetigo-like affection are seen.

Smearing the surface with any protective ointment early in the disease will effectually prevent and, though seemingly unimportant, will save some very nasty and stubborn cases.

Furuncle in the auditory canal, though not so often seen as in chronic middle ear suppuration, is comparatively frequent. They are found in the cartilaginous portion of the canal, and depending on the depth to which the infection penetrates, symptoms are severe or not.

Lack of cleanliness, debilitated general health and direct injury are the important factors in their recurrence. The pathology, that of a boil anywhere, but the firm fibrous character of the underlying tissues resisting swelling, tend to make them very painful.

A furuncle in this situation may be recognized by circumscribed swelling with more or less redness and tenderness on probe palpation, which may be localized in a point of maximum tenderness where it will point.

Traction backward or in any direction will be painful, as will pressure just in front of the auricle.

The auditory canal may be entirely closed by swelling, and it may be marked about the region of the auricle so that the examiner may suspect some more serious condition, and diagnosis is often difficult.

Temperatures as a rule run high, 104-105 F., and chills are seen in the initial stage, though rarely severe.

The course is about six days, and patients suffer from general malaise and especially from loss of sleep.

Early incision and proper antiseptic lotions are indicated.

Mastoiditis is the most important complication of this disease on account of its frequency and its possibilities.

Out of 19,000 ear cases seen in the New York Eye and Ear Infirmary in 1905, there were 806 acute mastoids.

Those mastoids having a cellular structure are more favorable ground for abscess formation than those of diploetic or eburnated type.

It is an infection of the cellular structure of

the mastoid process and may vary from an involvement of the mucoperiosteum lining the cells to complete destruction of the bone and formation of abscess.

It is seen especially in those middle ear suppurations following influenza, scarlet fever, diphtheria, measles and acute tonsillar conditions, and less commonly in tuberculosis, syphilis and traumatic lesions; and general health and hygiene have their effect as in other conditions in favoring its occurrence or not. Even before rupture, or a few days after rupture of the drum, pain may be complained of in the region of the mastoid or indefinitely in the ear and side of the head, and tenderness develops on pressure.

Mastoiditis is a disease with a limited symptomatology, often no symptoms that can be referred solely to the condition; but, on the other hand, there are many signs that are of value.

Tenderness on pressure is the most constant objective sign of acute mastoiditis and is generally well marked.

It will be found over the upper portion just back of the auricle corresponding to the deeper placed antrum, or at the tip of the process, or it may less commonly be diffusely found.

Tenderness far back over the region of the lateral sinus is a sign of special importance.

Associated with œdema of overlying tissues, I regard it as an unailing indication for immediate operation, and I have not yet seen a case where the finding did not justify the procedure. Pain is a varying symptom and is not severe, as a rule. Temperatures do not run high in uncomplicated mastoiditis. From normal to 101 degs. F. is about the average daily range. When temperatures are higher, show great daily remissions, or are of a septic type, there will be some complication found. The blood shows very little change. The polymorphonuclears are increased moderately and run about 8,000. Other forms of leucocyte show little change. But when in the course of mastoiditis there develops some condition as sinus thrombosis, where absorption of septic material is favored by invasion of soft tissues as the dura, there is a great increase in the number and proportion of the polymorphonuclears and often it is present before the classical symptoms present themselves.

The discharge varies in amount and in composition. It may be serous, seropurulent, mucopurulent, or purulent, and any of these may have an admixture of red blood cells. There may be a very profuse discharge or it may be scanty. When in the course of a mastoiditis with a profuse discharge some grave complication develops with high temperature, it is common to see the discharge cease abruptly; in fact, it may cease before temperature and other signs develop, and such an event should cause us to be watchful.

With advancing mastoid involvement there is often a swelling of the tissues lining the posterior superior auditory canal, the result of a peri-

ostitis in that part of the mastoid process and a valuable sign.

Given a case of acute middle ear suppuration complaining somewhat of pain in the region of the ear or indefinite in the head, temperature 99-101 degs. F., profuse discharge, tenderness on pressure behind the auricle, perhaps some local heat and œdema, and a prolapse of the posterior superior wall of the auditory canal, you have an affection of the mastoid cells.

Let this case progress with little change under treatment for several days, let us say, for the sake of being definite, ten days, and you can be sure that you have a mastoid abscess. If at the end of that period the discharge is still profuse and tenderness unabated and other conditions are at about a standstill, you will have a case for operation, for operation in skillful hands will give the best results and minimize danger to life. Treated in an expectant way is jeopardizing the patient's chances of good recovery.

In case of its finally resolving a matter of weeks or months, there is always some loss of hearing and nearly always a chronic middle suppuration remaining.

To be treated surgically, in a half-hearted manner, as in Wilde's incision or incomplete removal of necrosed bone is hardly an improvement on "masterly inactivity."

For what surgeon among you would be content in a bone abscess in any other part of the body to only open an abscess over a sequestrum, or bore a hole through its center and call the work well done; and why should it be practiced in a part where such serious complications may develop?

The number of chronic discharging ears among us is legion.

The dangerous character of this disease is not appreciated by the people, and not sufficiently by those of us not directly interested in this work.

No better proof of its seriousness is required than the attitude of the life insurance companies toward this affection, based on figures of the actuaries of the mortality following its complications.

If proper attention were given to the initial acute disease and more mastoids now continuous sequestering, pus producing cavities were cleaned out when first involved, the number of deaf mutes, partially deaf, and discharging ears, would be greatly reduced.

#### PAROXYSMIAL TACHYCARDIA.\*

By WESLEY T. MULLIGAN, M.D.

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PAYNE COTTON in 1867 wrote of a case of "Unusually Rapid Action of the Heart."

In 1897 Herringham collected forty cases of paroxysmial tachycardia.

Babcock, writing in 1905, says: "There are

\* Read at the third annual meeting of the Seventh District Branch of the Medical Society of the State of New York at Hornell, September 16, 1909.

no anatomical changes that can be definitely associated with essential paroxysmal tachycardia and likewise there is no established pathological basis upon which an explanation of the phenomenon may rest. The alterations which have been found on examination are common to many hearts which never manifested this peculiar disorder of action."

Nothing in the post mortem finding has explained these attacks.

Paralysis has been suggested and irritation of the sympathetic sufficient to overcome the controlling influence of the pneumogastric.

A combination of these two has also been suggested.

Many other surmises have been made and it is only lately that MacKenzie, Lewis and some others have, through more carefully recording the action of the various parts of the heart, at the same time combined with annual experimentation and pathological investigation, dared to suggest that this condition is brought about by an excessive irritability of the auriculo-ventricular node or bundle rendered so by disease, and on account of this irritability the rhythm starts here instead of in the normal position.

MacKenzie has shown that all the cases worthy the name of paroxysmal tachycardia are of the nodal rhythm, *i. e.*, where the auriculo-ventricular node is excessively irritable and starts the rhythm. The rate in these cases is usually 180-200 or more.

Paroxysmal tachycardia can be readily produced experimentally by ligation of the right coronary artery. Stimulation of the vagus does not influence this rhythm begun in the ventricle in this way, so once disease has rendered irritable this node—whether or not the person will have a normal rhythm, be affected by a rapid or slow heart, depends upon the caprice of the auriculo-ventricular bundle.

One may have but one attack or the attack may occur a number of times in the course of 10 or 15 years. They may come every year, or every few weeks or days. There may be several attacks in one day. The patient is conscious of an unusual fluttering or tripping of the heart. Walks carefully or lies down and becomes breathless on the least exertion. The veins of the neck are full and pulsate. The sounds become short and sharp. If the attack lasts long enough all the symptoms of dilated and failing heart come on.

If the attack subsides shortly and the patient responds well to treatment the prognosis is good.

There seems to be nothing in particular to depend on in these cases. What seems to alter the rhythm in one case will not do it in another. The attacks fortunately are usually self-limiting and so the drug we use frequently gets the credit for stopping the attack when it does not deserve it. Absolute rest, of course, is imperative.

The patients frequently acquire some stunt which stops the attack.

In a late journal of the American Medical Association a doctor, writing of his own case, tells how he stops the attacks by pressing on both carotids and attributes the effect to greater blood pressure in the ventricles.

I will trouble you with but one case history.

Mrs. M. S., married, 43; housewife; had one child; father died of cancer of the stomach at 60; mother died of heart disease at 57.

She had inflammatory rheumatism when 14. When 16 years of age had "spells" every year or two, gradually becoming more frequent until now she has four in one year. She has indigestion immediately after eating. Has a systolic murmur at apex, transmitted to the left.

Examination of urine reveals nothing abnormal.

On July 8, 1909, she had an attack lasting four hours. One-half hour after injecting into her arm  $\frac{1}{2}$  grain codeine the attack stopped, the rhythm became changed and the heart beat 60 to the minute, as opposed to 180 during the attack.

During some attacks she has been given morphine and sodium bromide—these stop the attacks but cause her to feel that she is going to die—gets blue, cold and perspires very profusely.

Last two attacks came on while asleep.

Before that some exertion preceded the attack and indigestion seems sometimes to have been a feature in the causation.

The longest attack lasted eight hours—the shortest one and one-half hours. During these the face presents a very anxious appearance, veins throb in the neck. She lies very quietly, as when she moves the heart beats faster. She has never lost consciousness.

## SPONTANEOUS TRANSVERSE LACERATION OF POSTERIOR WALL OF CERVIX DURING ABORTION.\*

By L. B. DARLING, M.D.,

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THE discovery of a recent injury of the cervix in a woman in the process of abortion would, if the lesion were at some distance from the cervix, lead the examining physician to conclude that it was the result of an unsuccessful criminal attempt to empty the uterus. Even if the patient were already under the care of a physician the suspicion would be aroused that a no doubt justifiable but technically imperfect operative procedure had been undertaken. Several cases are on record, however, in which such lesions of the cervix appear to have been

\* Extracts *Medical Record*, August 10, 1907, page 237.

spontaneously produced, and Blumrieck reports another in the *Berliner Klinische Wochenschrift*, July 15, 1907, in which there is no doubt that the cervix was severely damaged as the result of peculiar local conditions. When first seen in consultation by the author the patient, who was a young primipara in the fourth month undergoing an abortion induced on account of a recurrence of previous attacks of appendicitis gave no evidence whatever of any cervical injury, the only procedure that had taken place having been the introduction of a strip of iodoform gauze into the cervix. This was extremely rigid, and after slight further dilatation with Hegar's dilators a laminaria tent was introduced without occasioning further trauma. Some hours later exceedingly violent pains set in, and when the author examined the patient at the expiration of twenty-four hours it was found that the posterior half of the cervix had been completely torn away from the vaginal vault, while the fœtus was projecting from the uterine end of the cervical canal. Blumrieck explains the occurrence of this injury through the fact that the cervix was unusually undilatable, so that the very violent uterine contractions finally caused its upper thinned-out portion to tear through. Cases of this sort are undoubtedly very rare, but it is well to keep in mind that they may occur without any foregoing improper manipulation, a fact that may be of importance from the forensic standpoint.

On July 31, 1907, at four o'clock A. M., I was called to see Mrs. P. in consultation with Dr. —; found the patient aged 28 years, married four years, primipara, pregnant about four and one-half months, nutrition and elimination good. Family history neurotic. Otherwise normal. Parents died from pneumonia several years ago.

Eight years before marriage, while teaching school patient developed hystero-epilepsy. After three years' medical treatment the left ovary and tube were removed, as a supposed cause of the convulsions, as the seizure began with pain there. In about three years after the operation the epileptic convulsions diminished to about one or two a month. Not related to period of flow but more to nervous or amorous excitement. The fact of marriage did not materially lessen the attacks, which mostly came in the night.

For about a month previous to the onset of this attack the patient had a premonition that the epileptic seizures were about to return and that she would not survive them. She had consulted her present physician every few days exploring him to ward them off. Her doctor had analyzed her urine twice a week and had found nothing wrong, so had treated her for her nerves.

At eleven P. M., July 30th, she was found in a convulsion and Dr. H— was called and remained with her the balance of the night. The

convulsions followed each other rapidly. During the night and before my being called Dr. H— and the friends had consulted with a surgeon in Rochester by telephone, who advised emptying the uterus. So I was called to operate. Dr. H— asked me to dilate the cervix and pack with gauze, expecting to bring on expulsive pains and expel the fœtus. At five A. M. I dilated the cervical canal to size of nearly one inch and packed with gauze tape, catheterized and left her in care of attending physician and nurses.

At three P. M. I returned and found retention of urine, convulsions still continuing about hourly. I catheterized and obtained ten ounces of urine which contained no albumen or casts, after which convulsions ceased but pains continued in uterus until eleven P. M., when convulsions returned and continued until seven P. M., August 1st, when I was called again and found uterine dilatation progressing. Removed tampon after which convulsions lessened until eleven P. M., patient remaining comatose.

At eleven P. M. convulsions returned and at four A. M., August 2d, Dr. — examined and found the fœtus in the vagina, and on pulling the cord separated leaving the placenta in the uterus. At seven A. M. I was called to remove the placenta. Upon examining the cervix through the speculum at beginning of operation for removal I found the complete transverse separation of posterior wall of cervix from the body of the uterus at the cervico-vaginal junction involving one-half of the neck of the uterus through which the cord and edges of the membrane were protruding and through which the fœtus had been delivered, and the cervical canal contracted to the size of a number twelve sound, and firm throughout its entire length. I removed the placenta and membranes through the laceration and placed three catgut sutures through the parts and coapted the inner surface to inner surface and outer surface to outer surface and vaginal wall. Irrigated the vagina and left it. But patient's convulsions returned at two P. M. and she died at five P. M., after having asked for a drink of water, the only rational moment since the first seizure.

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## THE VALUE OF THE "NEGRI BODIES" IN DIAGNOSIS OF HYDROPHOBIA.

By S. R. KLEIN, M.D.,

NEW YORK CITY.

**S**INCE "Negri bodies" are found, rabies can be safely diagnosed. If not found, and the specimen is fit for inoculation into a rabbit, the biological test can still be made, and in a few cases it succeeds where the "Negri bodies" have been missed by the microscope. It is evident that

early diagnosis is important in the case of patients unwilling to go for treatment until the diagnosis is certain, while it is satisfactory for patients under treatment to know that the latter is absolutely necessary. While it is certain that through the Negri bodies hydrophobia can be produced within two hours, or sometimes in a shorter interval, as I had demonstrated some time ago in Chicago, it's certain also that ten days is the maximal term to save the life of the patient. Under to-day's knowledge of rabies we can positively announce that no certain diagnosis can be made—if Negri bodies are not found. Billroth wrote in his *Die allgemeine Chirurgische Pathologie und Therapie*, published in 1869, in Berlin, page 405-406-407, that there must be under any circumstances some "strange bodies" in the nerven-substanz, also spinal cord, which produce the terrible disease. But neither Billroth, nor others, as Dieffenbach, Kundrath, Skoda, Rokitsanzky, Nothnagel, or Scheuthauer in Budapest, also Hoegyés in Budapest knew where the virus stays during the ten, nor, as Ziegler and Koranyi, say: In seven days could be retained, if in the next lymph glands, or in the wound itself, or in the next blood vessels? Rokitsanzky says that a few hours before the terrible suffering breaks out cramps start along the spinal cord. Virchow describes the Negri bodies, which he knew already twenty years ago, as *zoonosen*, in his *Special Pathologie, II ter Abschnitt*.

No doubt that both Billroth and Virchow were very hopeful so many years ago already, that there will be found the real cause and also the real good treatment. During the past year 15,000 men, women, and children were treated in the famous European institutions *a la Pasteur*, and 1 per cent. died. Victor De Babes, who was with me in Budapest in 1888-1889, and who now conducts the famous Pasteur institute in Bukarest, Roumania, and who won since eighteen medals from European sovereigns, kings and emperors, did I think, beside Metschnikoff, the most valuable work on hydrophobia. He believes that certain very fine spherical, black or blue bodies found in degenerated nerve cells represent the parasites of rabies in full activity, and that the large Negri bodies are encapsuled, forms in process of involution and transformation owing to the local reaction induced in the invaded cell.

Lentz has recently described two new (a) staining methods for the Negri bodies, and illustrates the results by two colored drawings which give a very clear idea of the form of the corpuscles. Negri, continuing his work, indicates a cycle of development for the bodies bearing his name, which, though incomplete, is suggestive and strengthens the idea of their being protozoa. There are two phases: (a) large chromatin masses breaking up into (b) grains which are

surrounded by a ring of protoplasm, and which are so small as only to be visible *en masse*.

For diagnosis work smears should be made from at least three different parts of gray matter of the central nervous system; first, from the cortex in the region of the fissure of Rolando or in the region corresponding to it; second, from Ammon's horn; third, from the cerebellum. The smears are to be dried in air and subjected to staining methods. The eosin-methylene blue method is recommended by Malloruy. The smears are fixed in Zenker's solution for one-half hour; after being rinsed in tap-water they are placed successively in 95 per cent. alcohol-iodine one-quarter hour, 95 per cent. alcohol one-half hour, absolute alcohol one-half hour, eosin solution 20 minutes, rinsed in tap-water, methylene-blue solution 15 minutes, and dried with filter paper. With this method of staining the cytoplasm of the bodies is a magenta, light in the small bodies, darker in the larger; the central bodies and chromatoid granules are a very dark blue, the nerve cell cytoplasm a light blue, the nucleus a darker blue, and the red blood cells a brilliant eosin pink. The "bodies" and the structure are often more clearly defined with this method, and perhaps, on the whole, it is better to use it for making diagnosis; but when there are only tiny bodies present, or when the brain tissue is old and soft, the Giemsa stain seems to be the more successful.

## THE HUNGER STRIKE AND A TUBE-FED CASE.

By A. J. CAPRON, M.D.,

KINGS PARK, N. Y.

SINCE the suffragettes in England have again directed attention to themselves by their so-called "Hunger Strike," there has been a great deal written on the subject from opposite viewpoints. The jail authorities have been severely criticised by some and highly commended by others for their methods used to overcome it. The absurd and grossly exaggerated statements made by their critics plainly show that their knowledge of the subject is very limited. They have described in detail the barbarous methods necessary. The "chains, straps and brute force" used in feeding the rebellious ones have been graphically described and the horrors of it depicted in forceful terms.

Those who have commended the authorities for the simple medical procedures carried out, show that they have knowledge and appreciation of the conditions that arose and the method taken to combat them. The old and foolish endeavor to starve because of rebellion against imprisonment, or dislike of the food supplied by the authorities is a most absurd one because it is so easily frustrated. The method of "forced feed-



ing, mechanical feeding, or tube feeding," as it is called, is one that is of daily occurrence in the treatment of stomach ailments and in the care of the insane.

The procedure is quite simple and there are rarely any dangers connected with it. I shall not go into detail, but say that there are two methods employed. One where the tube is passed into the stomach by way of the nares, the other by way of the mouth. After a few times there is rarely any discomfort and some patients learn to pass the tube readily themselves.

I therefore, as a matter of interest at this time, wish to cite briefly the following case:

F. W., a case of dementia præcox of the catatonic type of about eight years' duration. In 1901 this case was quite seclusive and non-communicative, and for a time ate very poorly; refused a meal now and then, and on some occasions had to be induced to eat by the slow process of spoon-feeding. This condition slowly grew worse till June 10, 1905, when he refused to eat. He was allowed to go till the next day in hopes that he would voluntarily eat. This was not the case, as he became more catatonic and was tube-fed on June 11, 1905. He never aroused from this state, but was regularly tube-fed twice a day and kept well nourished to the time of his death which occurred October 27, 1909, a period of nearly four and one-half years.

While this is not by any means a record case for tube-feeding it is rather an unusual one. Of interest because of the length of time that the patient was kept well nourished by this "barbarous" method. Instructive in showing what can be done by tube-feeding and the uselessness of adopting such absurd methods to force results as a hunger strike.

### CORRESPONDENCE.

June 16, 1910.

DR. ALGERNON T. BRISTOW,

234 Clinton Street, Brooklyn, N. Y.

DEAR DR. BRISTOW: I was glad to read your editorial in the NEW YORK STATE JOURNAL OF MEDICINE.

I believe that there is a real danger that medicine in America may be sapped of its vitality by over-control and over-organization.

In the study of my particular specialty, diseases of the heart and blood vessels, I have had occasion to examine into the methods of teaching, and the subject matter taught, of the principal universities of America, Germany, England and France, and I will venture to affirm what anyone who examines into the thing will not deny that the independent and correct thinking that has led to real progress and knowledge has often come from sources unconnected with the great universities, and has attained its recognition by the weight of its absolute truth, often in spite of the opposition of the Chairs of Medicine of the Universities.

In general, the trouble has been in the blind adherence to the findings of pathologic anatomy which was the supposed impregnable foundation of medical

knowledge and in neglect of the plain teachings of pathologic physiology. I could cite many examples.

In London I found a man, under the authority of a great university, teaching the students that idiopathic hypertrophy of the heart was the cause of high blood pressure; while James McKenzie who has done more than any living man for the elucidation of heart disease had just come from a small town in Scotland where he had done his work, and was compelling recognition because the rank and file of the profession was realizing that he was telling the truth.

Medicine is an art with a scientific basis and must always be taught, and can only be taught successfully, by the natural teacher who is just as liable to develop in one place as another.

As you say, investigation must be divorced from teaching, and a definite quantity of medical science set apart and demanded as a part of medical education; and this can easily be taught by the smallest respectable medical school which can then easily excel its great rivals in teaching its students the art of practice, providing the students have the personal instruction of men who themselves are good practitioners.

We are drifting in this country into the same condition as pertains in the older countries of the world, and it is probable that future generations will have to look to some new republic for that vital liberty in medicine and everything else that in America has done so much for the advance of civilization, but the longer we can maintain conditions that have given a chance for the development of such men as you have mentioned as the product of a system which as you say, has been declared a thing of the past, the better it will be.

And the student who has attained a measure of the art of practice will handle a concrete example of disease with which he is unfamiliar in a manner much more beneficial to the patient than the student whose training has been of a purely technical laboratory nature, and who, with all his knowledge, is too dependent upon laboratory methods for the attainment of correct conclusions.

Yours very truly,

LOUIS F. BISHOP.

### COUNTY SOCIETIES.

RICHMOND COUNTY MEDICAL SOCIETY.

STATEN ISLAND CLUB, JUNE 6, 1910.

Joint meeting with the Greater New York Medical Association.

Addresses were delivered by Drs. James J. O'Dea, George P. Jessup, Sinclair Tousey and Ernest Gallant.

MEDICAL SOCIETY OF THE COUNTY OF SCHENECTADY.

SEMI-ANNUAL MEETING, SARATOGA LAKE,

WEDNESDAY, JUNE 15, 1910.

Vice-President's Address, "Carcinoma of the Breast," J. H. Collins, Schenectady.

"Review of the Sections on Surgery and Pediatrics of the St. Louis Meeting," by Drs. Charles G. McMullen and Frank Vander Bogert.

OTSEGO COUNTY MEDICAL SOCIETY.

SEMI-ANNUAL MEETING, COOPERSTOWN, TUESDAY, JUNE 14, 1910.

"The Limitations of Typhoid Fever," O. W. Peck, Oneonta.

Discussion opened by J. H. Moon, Cooperstown.

"Prevention of Tuberculosis," H. V. Frink, Richfield Springs.

Discussion opened by L. T. Genung, Worcester.

"Early Diagnosis of Tuberculosis," J. B. Huber, New York City.

A general discussion by all the members followed.

## CHENANGO COUNTY MEDICAL SOCIETY.

SEMI-ANNUAL MEETING, GREENE, JUNE 14, 1910.

The following resolutions were passed:

*Resolved*, That the sentiment of the Society is opposed to any proposed anti-vivisection legislation.*Resolved*, That the Society express to Dr. Abraham Jacobi its gratitude for the gift of medical works to be made a nucleus for a Chenango County Medical Library.

Dr. Robert H. Phelps, Norwich, was appointed Chairman of the Public Health Committee, and Dr. Frank Preston, Greene, of the Legislative Committee.

## SCIENTIFIC SESSION.

"Presentation of Case," C. W. Chapin, Greene.

"Some Phases of the Newer Psychiatry," Charles G. Wagner, Binghamton. (Owing to Dr. Wagner's absence the above was presented by J. I. McKelway, Binghamton.)

"Adenoids," H. D. Watson, Binghamton.

"Arterial Hypertension," P. B. Brooks, Norwich.

## BOOKS RECEIVED.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

**LIGHT THERAPEUTICS.** A practical manual of phototherapy for the student and the practitioner. With special reference to the incandescent electric-light bath. By J. H. KELLOGG, M.D., author of "Rational Hydrotherapy," "The Art of Massage," etc.; Member of the British Gynecological Society, the International Periodical Congress of Gynecology and Obstetrics, American and British Associations for the Advancement of Science, the Societe d'Hygiene of France, American Society of Microscopists, American Climatological Society, American Medical Association, Michigan State Medical Society, Superintendent of the Battle Creek (Mich.) Sanitarium, Battle Creek, Mich. The Good Health Publishing Co., Publishers of Therapeutics manuals. 1910.

**INTERNATIONAL CLINICS.** A quarterly of illustrated clinical lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pædiatrics, Obstetrics, Gynecology, Orthopædics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world. Edited by HENRY W. CATTELL, A.M., M.D., Philadelphia, U. S. A., with the collaboration of Wm. Osler, M.D., Oxford; John H. Musser, M.D., Philadelphia; A. McPhedran, M.D., Toronto; Frank Billings, M.D., Chicago; Charles H. Mayo, M.D., Rochester; Thos. H. Rotch, M.D., Boston; John G. Clark, M.D., Philadelphia; James J. Walsh, M.D., New York; J. W. Ballantyne, M.D., Edinburgh; John Harold, M.D., London; Richard Kretz, M.D., Vienna. With regular correspondents in Montreal, London, Paris, Berlin, Vienna, Leipsic, Brussels and Carlsbad. Volume II. Twentieth Series, 1910. Philadelphia and London. J. B. Lippincott Company. 1910.

## BOOK REVIEWS.

**THE EXPECTATION OF LIFE OF THE CONSUMPTIVE AFTER SANATORIUM TREATMENT.** By NOEL D. BARDSWELL. Oxford Medical Publications.

Rightly or wrongly, willingly or not, the sanatorium will continue to be judged in large measure by its re-

sults. At a time when criticism of its usefulness and question of its justification abounds, Dr. Bardswell's book is most opportune.

Though almost 100 of its 137 pages are devoted to case histories, yet it is a book equally readable and of value to layman and medical specialist, for the author states facts simply with details of observation, and avoids, what the German authors never avoid, polemics. The author draws freely on American sources for comparative studies and with this frequent reference to the work of the National Association for Prevention and Study of Tuberculosis bears witness to what has been done in this country in this line.

The conclusions cannot be better summed up than as Bardswell himself has done, "that of every hundred cases of consumption, taking them as they come, without any attempt at selection, fifty will die at a period of from four to nine years after their admission to the sanatorium, and the remaining fifty will be for the most part enjoying good health after the same period."

Certainly a most encouraging prospect and a conclusion fully justified by the facts presented. These results are predicated on 241 cases, of which only 25.6 per cent. were incipient on admission. Excluding the 35 per cent. of third stage, or far advanced cases, a much more favorable conclusion is reached, to wit: After seven years over 70 per cent. of incipients and over 50 per cent. of moderately advanced cases alive or well.

Bardswell's material is all drawn from the upper middle class, and quite a few of his patients were able to make keeping well their chief business in after life and were equipped with the means to do this; so equally favorable results cannot be claimed for sanatoria for the working classes. The results of their treatment are naturally a matter of much greater public concern, but it is reasonable to suppose that the difference in end result must be merely one of degree, not of principle, and if one is justified in maintaining that no other line of treatment known at the present time offers as much as Bardswell claims for the sanatorium, surely we are under obligation to provide that means as far as possible for all, and our efforts should be concentrated in an endeavor to keep our working class patient in as good health as when discharged from the sanatorium by efficient, intelligent, and broadminded after care. The controlling influence of this factor is well shown in Bardswell's essay.

The case histories have peculiar interest and are rather unique in that they are compiled extracts from the ex-patients' personal letters. E. S. McS.

**PREVENTABLE DISEASES.** By WOODS HUTCHINSON, A.M., M.D., Clinical Professor of Medicine, New York Polyclinic, etc. Boston and New York. Houghton, Mifflin Company. The Riverside Press, Cambridge, 1910.

Dr. Woods Hutchinson brushes aside the popular idea that diseases tend to run in families. He places the responsibility for diseases squarely upon the individual. He then reads him a plain lecture how to protect his well being. The diseases he is most liable to contract are recounted, and the method of prevention, by raising the protective forces, is dwelt upon. Upon such knowledge rests preventive medicine, and therefore this book is a timely one. H. A. F.

**THE CONQUEST OF CONSUMPTION.** By WOODS HUTCHINSON, A.M., M.D., Clinical Professor of Medicine, New York Polyclinic, etc. Boston and New York. Houghton, Mifflin Company. The Riverside Press, Cambridge. 1910.

Heretofore the victim of tuberculosis was pronounced by himself and common consent doomed. That tuberculosis is a controllable, preventable and curable disease science has demonstrated. This book tells the latter story to the layman in plain, wholesome style. Let the public read this book and digest it and pass it along!

Then we will soon arrive at the time when the disease will be considered a curiosity, instead of the most prevalent scourge of the human race. Ignorance, plain, downright ignorance is at the bottom of this curse.

H. A. F.

**MENTAL MEDICINE.** Some Practical Suggestions from a Spiritual Standpoint. Five conferences with Students at the Johns Hopkins Medical School. By OLIVER HUCKEL, S.T.D., Graduate University of Pennsylvania; Student at Oxford and Berlin Universities; Pastor, Associate Congregational Church, Baltimore. With an introduction by Lewellyn F. Barker, M.D., Professor of Medicine in Johns Hopkins University. New York, Thomas Y. Crowell Co., Publishers.

In these addresses given to the students at the Johns Hopkins Medical School, Dr. Huckel has with some success shown how the work of the clergy and the work of the physician may co-ordinate and supplement one another.

Let us keep in mind that these conferences on mental medicine are from a spiritual point of view, and delivered with the purpose of showing the way in which religion may become a help towards a better state of health, physical as well as moral. We shall then be more lenient towards the preacher and allow him a certain license that is usually given to the pulpit orator.

If we accuse the modern clergy of only recently making the discovery that high moral living is necessary for the best physical health, we would be met with the assertion that "the life that attains nearest to health and happiness is usually the life that has come into fullest harmony with God—and the Church has worked somewhat along these lines *all through the centuries*," page 26. If this is quite true in regard to the Church, we would insist also that this is quite true in regards to the practice of physicians; they have worked somewhat along these lines all through the centuries.

One can hardly read Dr. Huckel's book without being impressed with this, that some of the clergy have had a great awakening and are discovering now, that moral health and physical health depend to a very great extent, the one on the other.

The difficulty of applying faith as a therapeutic agent, without a theology and a creed, is well illustrated in Dr. Huckel's second conference. He states that it is not a superstitious faith that is needed, not a theological faith, nor a creed, and then forthwith gives a theology and a creed. Both theology and creed are excellent in their simplicity and reasonableness, but nevertheless there they are.

Many of the faults and crudeness of the book of the Emanuel movement have disappeared in Dr. Huckel's book. It is much more reasonable from the physician's point of view, and especially in this, that the place of the physician is never lost sight of, and the necessity of keeping mental therapy in its own place is insisted on frequently.

Wherever the physician and the clergyman have to work together, as often they must, this book will be a guide and a help.

PETER SCOTT.

**A SYSTEM OF OPERATIVE SURGERY.** By various authors. Edited by F. F. BURGHARD. Oxford University Press. London. 1909. In four volumes.

This system of operative surgery makes a very valuable addition to the surgeon's resources.

The field of surgery is so large that no one man can gain great skill or even satisfactory knowledge in all departments. All surgeons, however, need to know from time to time what men of unusual skill and experience have learned in those departments in which they are most interested.

This system aims to give this knowledge. One who watches the work of very skillful men appreciates that they have acquired unusual knowledge. This knowledge and the power to apply it have ordinarily come from experience; the dealing with similar problems

time after time has given comprehensive knowledge which could not otherwise be gained. The results which such men obtain are wonderfully better than ordinary results. The profession at large should have the advantage of their knowledge and skill.

The ideal work on operative surgery would be one in which the most skillful man in each department tells the profession how he does his work and explains the reason for his procedures. Burghard's System of Operative Surgery comes nearer to this ideal than any other which the writer has seen. Primarily, it describes operations. Secondly, it states the indications for and against them. It goes into the details of the surgery of all the regions of the body and states what the specialists have learned about them. The limitations of space prevent the reference to the individual articles, but when we see such familiar names as B. G. A. Moynihan, John Blaud-Sutton, H. T. Butlin, Hunter F. Tod, Howell Stiles, Edmund Owen, and C. H. Makins, we are assured of the excellence of the work and its value as a surgical guide; and when we consult the articles with definite cases in view we are convinced that we can here find clear, concise and comprehensive description of the surgical procedures which are used by the advanced workers of the present time.

The illustrations and printing are excellent and the material so arranged and stated that it is easily available for reference. Incidentally it is instructive and interesting for men of one country to know just what their confrères in another country are doing.

C. H. D.

**INTERNATIONAL CLINICS.** A quarterly of illustrated clinical lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world. Edited by HENRY W. CATTELL, A.M., M.D. Volume I. Twentieth Series. 1910. Philadelphia and London. J. B. Lippincott Company. 1910.

This volume contains articles on the serum diagnosis of syphilis by H. F. Swift, Hideyo Noguchi, and B. Sachs, which are timely and bring the subject up to date.

Pellagra is discussed in two articles. The tuberculins and their diagnostic and therapeutic use are well presented. There are also excellent articles under the headings of general medicine, surgery, gynecology, pediatrics, neurology, anatomy, and medical education.

An admirable feature of this volume is a résumé of the progress of medicine during the year 1909. That on treatment is by A. A. Stevens; on medicine by J. H. Musser and Lucius Tuttle; and on surgery by J. C. Bloodgood.

This book contains a valuable collection of recent medical information, and is well adapted to the needs of the practitioner. There are a number of good plates and illustrations.

N. J.

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## DEATHS.

ALBERT O. BOGERT, M.D., Spring Valley, died June 27, 1910.

RICHARD ARTHUR DEKAY, M.D., Livingston Manor, died May 3, 1910.

W. R. HOWARD, M.D., Rochester, died May 22, 1910.

HENRY G. PIFFARD, M.D., New York City, died June 8, 1910.

WILLIAM L. JOHNSON, M.D., Johnstown, died June 26, 1910.

JOHNSON PILLMORE, M.D., Delta, died May 20, 1910.

## IN MEMORIAM.

JOSEPH W. EDDY, M.D.

The profession of the State was shocked on the morning of March 12, 1910, to learn of the death of Joseph W. Eddy, at his home in Oswego. Dr. Eddy was one of the most popular physicians practicing in Central New York. He had an impressive personality, a benign face; was large of body, but as one of his critics has said, "He had a breadth of mind and heart that made him friends among all classes." He was a thorough student, intellectually brilliant, witty, an unusually entertaining conversationalist, versatile in his accomplishments. His extensive travel, his love of Nature, a keen sense of humor, his kindly disposition and his cheerfulness made him a companion eagerly sought and always welcome.

Dr. Joseph W. Eddy was born in Williamstown, Wayne County, N. Y., on April 17, 1851, and was the son of Norman S. Eddy. He was graduated from the Marion Collegiate Institute and the Attica High School. He graduated from the Detroit Medical College in 1874. Immediately following his graduation he went abroad, where he spent five years in study at l'Ecole de Medicine, in Paris, and Guy's Hospital, London.

It was always interesting to listen to Dr. Eddy's rehearsal of his Paris experiences. He enjoyed life in the Latin Quarter. He often spoke of the years spent in Paris as the most profitable of his life.

In 1878, Dr. Eddy married Miss Hannah C. Eggleston at the Church of St. Martin-in-the-Fields, Trafalgar Square, London, England. He settled in Oswego in 1879. He at once established himself in practice and continued in the treadmill in the city of his adoption until the day of his death.

Dr. Eddy was a brilliant surgeon, a cautious and well-trained diagnostician, a practical therapist, always enthusiastic, always searching for new truths, ever ready to adopt methods which seemed to him rational after a thorough study of their claims, without undue haste, and with the caution so necessary for the good of his clientele. Having made his home in a small city, distant from educational centers, he recognized the urgent need of a well-selected library. His books were his companions. He not only had a thorough knowledge of medical history and medical literature, but he was an ardent reader of the Classics and became an excellent literary critic. The London *Spectator*, which he commenced to read during his boyhood days, was eagerly scanned each week until the hour of his death. As a medical expert witness, he had no equal in the section of the country where he practiced. As a surgeon he was conservative, but always ready to operate when he conscientiously believed that surgical interference was indicated. He enjoyed an excellent reputation as a consultant and his services were in demand in all parts of the State. In the sick-room, in spite of his unusual size, he was graceful, tender in the care of his patients; his strong and forceful character always made his presence felt. His patients became his friends; their heads are now bowed in sorrow because of his passing away.

Dr. Eddy enjoyed nothing more thoroughly than meeting his colleagues socially, and considering his experience with them. He was a raconteur of unusual ability, and those who knew him best will forever cherish the memory of many social gatherings, many medical meetings made cheerful and enjoyable by his wit and eloquence. He received many honors from his professional brethren. Shortly before his death he was elected president of the District Branch in which he lived. In 1886, he was made chief surgeon of the Rome, Watertown and Ogdensburg Railroad and held that position until that road merged with the New York Central, when he became division surgeon. He was much interested in the Oswego Hospital; worked hard and faithfully from the day of its organization, and became one of its visiting physicians.

Dr. Eddy lost his wife six years ago and is survived by one daughter, Mrs. Louise Light of Oswego, and by one sister.

Dr. Eddy's memory will continue to live, and the members of the Medical Society of the State of New York will hold it in high esteem because of the genuine value of the man, his earnestness, honesty of purpose, enthusiasm and self-sacrifice.

Respectfully submitted,

HENRY L. ELSNER, *Chairman.*

WALTER H. KIDDER,

FRANK S. LOW.

JAMES D. SPENCER.

Dr. James D. Spencer for many years the leading surgeon of Northern New York, died at his home in Watertown, May 5, 1910. His death was due to cerebral hemorrhage and came as a shock to most of his professional friends and the community at large.

For more than two years Dr. Spencer has had symptoms of an advancing arteriosclerosis, which however, was only known to a few of his professional brethren and by Dr. Spencer himself, but this did not deter him from continuing an active professional career to within a week of his death.

Dr. James Decker Spencer was the son of the late Dr. H. G. P. Spencer, a pioneer surgeon of the North Country, and was born in Denmark, Lewis County, N. Y., April 14, 1849. His education was obtained in the public schools, the Jefferson County Literary Institute and at the Phillips-Exeter Academy of Exeter, N. H. In medicine he was a graduate of Bellevue Medical College of the class of 1870. After his graduation he was for a time associated with the late Dr. H. Marion Sims, as his assistant. Returning to his home in Watertown he entered into a partnership with his father which continued until the death of the elder Dr. Spencer, twelve years ago. After the death of his father he associated with himself Drs. C. N. Bibbins and C. E. Pierce under the firm name of Drs. Spencer, Bibbins and Pierce.

From the beginning, Dr. Spencer's professional career was marked with success. He did a general practice, but with a marked tendency toward surgery and especially gynecological surgery. For years he and his father did all the major surgery that was done in this section of the State. With failing health his work was confined to consultations and the care of a few of his older families.

Dr. Spencer always took a keen interest in the scientific meetings of the profession. He was not only prominent in the city and county meetings but took an active part in the State and National societies. He was held in such esteem by his colleagues of the State society that he was elected and served as its president for the year of 1896.

In his home town of Watertown he was much beloved, not only by those whom he had cared for, for years, but by those who only knew him by reputation.

Probably Dr. Spencer's most characteristic trait was his interest in the younger members of the profession. It is safe to say that no office in this section of the State, and probably no office in the State, started so many young men on their professional careers as did Dr. Spencer's.

His interest in these young men did not end with their graduation, but he followed them in their subsequent work with as keen an interest as though they belonged to his own family, and he really felt that they were of his family. That this interest was reciprocated by his professional brothers was clearly shown by the number of physicians in attendance at his funeral who all felt a deep personal loss in his death.

Respectfully submitted,

G. D. GREGOR,

C. N. BIBBINS,

E. S. WILLARD,

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## EDITORIAL DEPARTMENT

### SCIENCE AND HUMANITY IN MEDICINE.

ON the one hand, to-day, more than ever before, we have the cult of science, exact and sure, as we are prone to believe—at least many of us. On the other side, we have not a few who still cling to the thoughts and acts of the past as beacon lights for their conduct. Who are those who are right, and why so? This is the question which seriously agitates my heart and mind, and has for some time, but especially so, during the past forty-eight hours, in view of cases lately seen, which have forced me to give my undivided thought to the best practical solution of problems affecting immediately the happiness and life of those to whom I am still the guiding hand in matters affecting most nearly their bodily, and indeed their mental well-being.

This morning, for example, I am brought face to face with the following: An only son and child, grown up, and doing a man's work in the office of an important New York daily paper—engaged to be married, and now known to have the first stage of pulmonary tuberculosis—if the presence of tubercle bacilli in the sputa should fix the diagnosis absolutely; young man, young woman, father and mother, all very unhappy because of the counsels which I have given in an authoritative way, I ordered: first, give up city work; second, go to the country; third, follow daily certain careful lines of living; fourth, judicious and well-known medication; fifth, avoidance of intimate association with fiancée, so long as bacilli are present in sputa. Despite all I could say, all the comfort I could give the affected ones, father, mother, the engaged couple—are dominated by prevailing ideas and particularly those pertaining to the dreaded disease, because of its contagious nature.

Now, in the first place, as we all must know, pulmonary tuberculosis is only contagious prac-

tically, to the relatively few susceptible ones, and even to these under variable conditions. If the future victim is very susceptible, he may take the disease, or rather develop it, no matter how great or how minute and broad our precautionary methods may be; if he be only moderately susceptible, he will probably not take the disease unless the exposure is exceptional and prolonged—in so far as proximity and time are concerned.

Must we, in view of the foregoing, lay down hard and fast rules which govern the lines of all the affected ones and in my judgment cause a very great deal of unnecessary distress.

Again, and according to the very latest investigations, the microscope does not absolutely determine either the diagnosis or prognosis of the tubercular bacillus. Its morphology indeed varies somewhat; so does its reaction to certain chemical agents which is perhaps more important; so does its power to carry infection to others, as may be shown by inoculation to animals, especially the guinea pig—most important determination of all. And yet this requires a well appointed laboratory and a month's waiting to reach an absolute conclusion at the present time.

Aside from the tubercle bacillus and no matter whether found or not, I would counsel my patient referred to above, in practically the same way, so far as the regaining his health and the protection of his beloved ones, is concerned. I would not, however, handicap him from the start with an exaggerated and possibly untrue notion in regard to the transport of the contagion, when to say the least, in some instances, it is more than doubtful how it is carried, and when and where.

Many years ago, I was attending physician to the heart, lung and throat class of a large dispensary of one of the great hospitals of New York City. I served there during thirteen years, and during that time had several able,

conscientious assistants. During that same period the little room in which we were often crowded and for hours at a time, three times a week, was rarely, if ever, thoroughly renovated, or even disinfected, and cleaned. I am not aware, however, that I, or any one of the other physicians, took pulmonary tuberculosis from our professional work. One of my assistants is now a distinguished professor of clinical medicine in one of our New York medical colleges, and attending physician to two of our largest city hospitals. He, I am sure, would testify to the absolute truth of the statement I have just made. Moreover, it is not, in my opinion, proven that the cures of pulmonary tuberculosis are now, even with multiplied sanatoria everywhere, much, if at all, increased over what formerly existed. And it is certainly true that very many relapses and even deaths occur after sanatorium treatment. Apply therefore, the lavish expenditure of money necessary for the support of the sanatoria to improve the living conditions among the poorer classes and in that way eradicate the disease. That's my *best* judgment.

Further, consider what really exists—in our public schools especially. Very many of the pupils already, have incipient, if not advanced pulmonary tuberculosis, yet they all, or most of them, play in our streets and travel in our cars—disseminating in many instances, in this way, tuberculosis, through infected dust from sputa which permeates *everywhere*.

What I have written about tuberculosis I might write in a somewhat different way of more than one virulent, microbial disease—notably diphtheria. Numerous errors have been made and even now are being made in regard to the precise value of the Löffler bacillus in its power to carry disease, depending after all, upon the *personal* equation, which is ever different, the conditions of exposure and the *unknown*, but most important, particular susceptibility at a given time, which may be passing, or more or less prolonged.

In my early professional life, I was house physician in a children's hospital in Paris, with charge of a diphtheria ward. I saw the most virulent cases during a period of over six months. During that time I was poorly fed and over-worked, and passed many hours, day and night, in the ward, and received more than one direct inoculation because of the thirty tracheotomies which I performed in my term of service and yet escaped disease. Several years later, in New York City, when taking care of a relatively mild case of diphtheria, and when well fed and not over-burdened with work and living in healthy, ambient conditions, I contracted the disease and would have died except for an all-wise providence and excellent care from the late Dr. Andrew H. Smith.

Can we avoid or prevent, contagious disease

beyond a very limited degree? In my humble belief we cannot. Not that we may not, and probably do, avoid it by all sorts of precautionary measures at times, often *excessive* to the point of foolishness. But even then, we have avoided possibly, *disease* in a very mild, almost innocent epidemic; and later, we will take it, no matter what our great and ceaseless precautions have been.

Epidemics vary and so does individual susceptibility; with atmospheric, or other ambient conditions, or indeed habits perhaps, of the individual—and really we know little more and have only equal, and still imperfect, control of them, with what we enjoyed, years, not to say decades, periods, centuries ago.

It is true still of scarlet fever, measles, influenza, and perhaps others still. When it comes to smallpox, we have, for which we should be everlastingly thankful, a *specific* in vaccination, and in diphtheria we have a great and wonderful help many, many times, but by no means infallible.

Now, then, what do I wish to insist upon? Surely *not* upon ignorant, senseless *laissez aller*. If I did so, I would be most derelict and prove false to my teaching and to the daily, hourly knowledge which comes from our great health board, and from our most admirable health officer of the port of New York. But these latter are telling us all the while, don't be afraid of certain things; time honored though they be, like the transmission of disease through fomites; don't believe that *pulmonary* tuberculosis is any more contagious than it ever was, and don't believe that the tubercle bacillus about which we know even now only imperfectly, is such a frightful little bug after all. It wants when it is visible, merely to tell us to be rational, simple minded and simple acting, as the late Prof. Austin Flint, of revered memory, told us over thirty years ago: go to the country for a while, rest, eat good food and take moderate exercise, and help yourself with appropriate medication, and the disease will frequently disappear because of self-limitation. Meanwhile, let humanity rule now and always. Let our brother and our sister in trouble, be really and truly a brother and sister to us, and let us do as we would be done by, and if thus the golden rule is practically adhered to, there will in the long run be no more disease than now, with all our over-estimated, precautionary measures.

I would add one thing and only one, and do so, because of its immense importance. *Vaccination* should be absolutely obligatory. A senseless segregation and quarantine would then be unnecessary, just as the Japanese and Germans have shown—because there would be no people to take smallpox and the disease would cease to exist. "What fools these mortals be!"

BEVERLEY ROBINSON, M.D.

## Original Articles

### VERTIGO—SOMETHING OF ITS VARIED ORIGIN AND SIGNIFICANCE.

By J. E. SHEPPARD, M.D.

BROOKLYN, NEW YORK.

VERTIGO is, of course, not a disease, but a symptom, and is defined by Gowers as, "any movement or sense of movement, either in the individual himself or in external objects, that involves a defect, real or seeming, in the equilibrium of the body." Panse says, "vertigo of position is an erroneous conception of our relation in space, the impression of which is conveyed along three paths; by the eyes, through the organs of equilibrium in the labyrinth of the ear, and by the kinæsthetic sense, *i. e.*: the sensation of the skin, muscles, joints and viscera. Centripetal stimuli pass along these three paths which unconsciously enable us to preserve the equilibrium of the body. Along each of these paths morbid stimuli may pass, which, if they are sufficiently strong, will lead to a disturbed conception of our position in space—in other words, to vertigo." It is "objective" when movement is attributed to the objects about the patient, and "subjective" when the patient himself is seemingly in motion; this motion may be horizontal, or vertical, oscillatory, or gyratory. Equilibrium may be defined as "a state in which all the skeletal muscles are under control of nerve centers, so that they combine, when required, to resist the effect of gravity, or to execute some co-ordinated movement."

In order that these centers may send to the muscles of the body impulses that are adapted to produce the desired result, it is absolutely essential that they should receive impressions which will give them cognizance of the exact position of the body, and of the condition of the muscles at the moment as to contraction or relaxation. These impressions or sensations taken as a whole constitute the *sense of equilibrium*.

By *Static Equilibrium* is meant the *equilibrium of rest*, and the utricle and saccule have been regarded as the organs concerned in this function. That is, that the knowledge of the position of the head while at rest is communicated to the co-ordinating center in the cerebellum by the pressure of the endolymph upon the otoliths, and these in turn upon the hair-cells of the maculæ acusticæ. By *Dynamic Equilibrium* is meant the *equilibrium of motion*, which appears to be presided over, at least to a very considerable extent, by the semi-circular canals, from which impressions pass to the cerebellum.

From the physiologists, I may be permitted to

quote the following with reference to the functions of the semi-circular canals and of the cerebellum: From Tigerstedt, "If the conclusion is correct that conscious impressions as to the position of the head and orientation of the body are obtained from the labyrinth, it ought to be regarded also as an actual *sense organ*, analogous to the organs of the motor sensations." From Howell, "With regard to the influence of the nerve impulses from the semi-circular canals upon movements, all the facts known seem to indicate that they play an important part in the regulation or co-ordination of the movements of equilibrium and locomotion. Inasmuch as this general co-ordination or control seems to rest normally in the nervous mechanisms of the cerebellum, and inasmuch as the vestibular nerves make possible end-connections with the cerebellum, together with the fibres of muscle sense, we may assume, that the cerebellum forms the brain center, in which the semi-circular canal impulses exert their influence upon co-ordinated muscular contractions—the cerebellum forms the nerve center for the semi-circular canals, or the semi-circular canals form a peripheral sense-organ to the cerebellum." Some such hypothesis seems to be necessary to account for the general similarity between the effects of lesions of the canals and of the cerebellum.

Contrast these cautious statements of the physiologists with the following very positive statement of Woakes that, "any and every phase of vertigo requires for its manifestation the implication of certain organs situated in the labyrinth, *i. e.*: that all vertigo is essentially auditory in its location; that the semi-circular canals, with the utricle and saccule, are the end-organs for the maintenance of the equilibrium of the body." Or again, the statement of Gruber that, "phenomena referable to disturbances of equilibration can only be evoked through the medium of the semi-circular canals *in virtue of their relations with the central nervous system*," he also attributes much importance to the ductus endolymphaticus, and its termination, the recessus Cotugnii, of which latter he says, "if it be largely developed it will become distended to a corresponding extent, and thus exercise a more considerable pressure upon the *center of statical equilibrium, the cerebellum, evoking symptoms of vertigo, etc.*" Thus we get at once into the thick of the controversy as to whether all vertigo is, or is not, labyrinthine. Many of those who hold that it is, are certainly very positive about it, while others believe that the cerebellum and adjoining portions of the great nerve tract are quite competent, when diseased, to produce vertigo, entirely without the intervention of the vestibule and canals.

As regards *Pathology*.—Supposing that the cerebellum has something to do with equilibrium, or the lack of it, then it is necessary that it shall

receive afferent impulses along fibres that conduct impressions from the tactile, muscular and visual senses, as well as from the labyrinth, and probably also the viscera, after which it sends out impulses along its efferent fibres which pass to the motor areas of the cerebrum. Should the conduction of these impressions be interfered with through some pathological change or condition, we have a disturbance of the equilibrium, and vertigo results.

*Diagnosis.*—Vertigo causes so much alarm to the patient that the determination of its origin in a given case is of great importance: Is it acute or chronic? Is it subjective or objective? Whence does it arise, or to what variety does it belong? G. R. Butler says that, "in by far the larger proportion of cases it is due to neurasthenia, especially the lithemic form, gastric disorders, arteriosclerosis, aural disease, eyestrain, these causes being arranged approximately in the order of relative frequency." In one respect he differs from most writers on the subject, the group of gastric, intestinal, and hepatic, being usually regarded as most frequent.

Perhaps as good a "Classification of the Causes of Vertigo" as has been made is the following by Becker:

1. Reflex—(a) gastric, (b) auditory, (c) ocular, (d) nasal obstruction.
2. Hæmic—(a) cerebral anæmia, (b) cerebral hyperemia, (c) chlorosis, (d) leukemia, to which I would add (e) arteriosclerosis.
3. Toxic—(a) drugs, (b) hepatic insufficiency, (c) renal insufficiency, (d) onset of acute infectious diseases.
4. Neuroses—(a) epilepsy, (b) neurasthenia, (c) hysteria, (d) psychic.
5. Organic disease of (a) brain (cerebellum, pons), (b) spinal cord, (c) vestibular branch of acoustic nerve.
6. Mechanical.

In a severe case, the sensation may be so sudden and profound as to be likened to a blow; in the slighter degrees there is a swimming lightness in the head. The gait is reeling or staggering, like that of a drunken man. Slight nausea often co-exists, and vomiting may follow a sharp attack. As to loss of consciousness, opinions differ; if present at all, it is certainly very brief, and many deny its presence, unless there is accompanying syncope. There is often indistinctness of vision, and slight confusion of the thoughts; cardiac palpitation and tinnitus aurium are frequently associated with the vertiginous sensations.

*Gastric Vertigo*, including therein "Intestinal," "Bilious" of C. L. Dana, and that of "Hepatic Insufficiency," and probably also the "Lithemic" of Becker. The vertigo of acute indigestion occurs in a person of middle age, is sudden in its onset, with headache, after a full, or indigestible meal, and is relieved by vomiting or a purgative. That of hyperacidity of the stomach

comes on with a sudden headache, dimness of vision (blind headache), a reeling gait, temporary mental confusion, and possibly the vomiting of an extremely sour fluid. In cases of chronic gastritis there is often a mild, more or less chronic, vertigo associated with oppression or distress after eating, epigastric tenderness, etc. This sort of vertigo is, of course, reflex—the nucleus of the vestibular nerve being in close relationship with that of the pneumogastric.

*Bilious Vertigo*, would seem to be due to a disturbance of the varied functions of the liver, which may result in intestinal fermentation and putrefaction, also in uric acid excess, the resultant toxic substances becoming sufficiently excessive to enter the circulation and irritate the nerve centers, the vertigo in such cases often coming on in the early morning, and is mild, paroxysmal, and associated with headache, anorexia, irritability, nausea, etc.

*Aural Vertigo.*—Auditory Vertigo.—Auricular Vertigo.—Labyrinthine Vertigo.—Otopathic Vertigo.—Meniere's Vertigo.—Meniere's Disease.—Vertigo Auditiva Miasmatica—of Longi—this latter being an aural vertigo occurring periodically at regular intervals among patients in the marshy districts of upper Italy.

Aural vertigo of reflex origin may be caused by a hardened mass of cerumen, a foreign body, water from bathing, furunculosis, etc., in the external canal—and by any form of otitis media. These affections disturb reflexly the labyrinth pressure, and set up a vertigo. Along with it there may be pain and fever in acute middle ear suppuration; a slight amount of staggering, nausea and tinnitus may also be present. The causes of reflex auditory vertigo are all visible, and the vertigo is in no relation to the intake of food.

About *Meniere's Disease* there has always seemed to me to be much misunderstanding. Among physicians other than aurists, one hears of it as if it were a frequent occurrence. How really rare a condition it is may be judged by the fact that but a very few years ago Frankl-Hochwart was able to collect only twenty-seven typical cases from the entire literature of otology. It comes on with symptoms of an apoplectic form of congestion of the brain or in the form of a true apoplectic attack. It begins either with dizziness, tinnitus, nausea or vomiting, staggering gait, and marked deafness, or the individual falls suddenly with loss of consciousness, as if struck down;—consciousness usually returns after a short time, the patient's face is pale, and bathed in cold sweat; a bilateral, more rarely a unilateral, deafness accompanied by severe subjective noises is experienced, and nausea, vomiting, marked dizziness, and a staggering gait are observed when he tries to rise. There is no trouble with the membrana tympani, nor with the Eustachian tube, nor with the cranial and spinal nerves—



complete deafness, or nearly so—none, or very little bone conduction; relapses are frequent, deafness as a rule remains stationary, tinnitus usually lessens, but may remain indefinitely, dizziness gradually disappears, although in exceptional cases may remain as an unsteadiness of gait for years. In this form, the so-called *true Meniere's Disease*, there is a pathological process in the labyrinth or the nerve-endings contained therein, most often a sudden hemorrhage.

In *false Meniere's Disease*, or Meniere's "Symptom-complex," we have a condition which is much better named simply "aural vertigo," and from which Meniere's name should be entirely dropped and thereby much confusion avoided. This "aural vertigo" varies in intensity, is usually associated with tinnitus, and may be accompanied by vomiting. It may be occasioned by disorders of the central nervous system—it may develop from middle ear affections, chronic middle ear catarrh and otosclerosis,—from caries of the outer labyrinthine wall in middle ear suppuration and with consequent suppurative labyrinthitis—or rarely may result from rheumatic paralysis of the auditory nerve.

Finally, vertigo to be of aural origin must in practically all cases be attended by distinct symptoms referable to the ear, and in the reflex cases by changes visible to the eye. Alderton's apparatus for testing for disturbances of equilibrium (static form), his goniometer, might properly be called to your attention. It is described and illustrated in De Schwienitz and Randall's Text Book of Diseases of the Eye, Ear, Nose and Throat. In his article on Diseases of the Internal Ear, he mentions vertigo as a symptom, in a variety of combinations, of labyrinthine anemia, hyperemia, hemorrhage, embolism, and thrombosis—of serous effusions, of hyperplastic and exudative labyrinthitis, of affections of the nerve trunk, concussion of the head, resulting in shock to the acoustic nerve, of basilar meningitis, of hemorrhage at the point of origin of the acoustic nerve, and of fractures of the petrous bone.

The symptoms going with and indicating *Cerebral Vertigo*, or *Vertigo due to organic diseases of the Nervous System*, are in many cases rather intangible. Brain tumors involving the acoustic nerve in any part of its course usually cause tinnitus, vertigo, and more or less deafness, accompanied by, sometimes slight facial paralysis as an early symptom, together with a feeling of tightness in the head, a sensation of pain and pressure in the affected side of the head, glimmering before the eyes, slow pulse, choked disc, disturbances of vision, and finally localizing sensory and motor paralyses. The point of the tumor's origin, and the direction of its growth, must determine the order

of symptoms. Vomiting and convulsions may be present, as well as nystagmus.

Among the *organic diseases of the nervous system* of which vertigo, with other symptoms, has been noted as an indication, besides tumors and abscesses of the cerebrum and cerebellum, may be mentioned apoplexy, sclerosis, intracranial syphilis, gumma and softening of a portion of the medulla, aneurysm of the left vertebral artery near its junction with the basilar, extensive sub-dural hemorrhage.

Browning speaks of dizziness, faintness, etc., as strongly suggestive of thrombosis, when accompanied by the unilateral type of paræsthesiæ and coming on in an elderly person. Browning also records a case suggesting multiple sclerosis, but due to intra-cranial aneurysm, with staggering, nystagmus, diplopia, headache and loud pulsating tinnitus, the exact location of the aneurysm not having been determined because the case was greatly benefited by tying the common carotid artery. He also mentions a case of bilateral apoplexy of the lenticular or nuclei simulating lesion in the floor of the fourth ventricle, in which the initial symptoms were extreme dizziness, with pain in the head. Although the staggering of locomotor ataxia is for the most part an ataxia, still there is in many cases a real vertigo as well. As showing the complexity of the problem of the central vertigo, let me quote a sentence or two from an article by Coriat on the cerebellar-vestibular syndrome: "The anatomy of the central pathways concerned in equilibrium, together with the physiological and hydrodynamical interpretations of symptomatology, offers a far more complex problem than any clinical observation or post-mortem findings. It would comprise the anatomy of the complex vestibular nerve, of the central connections of the cerebellum and the restiform bodies, and the relation of these to the oculo-motor nuclei; it would lead us into certain developmental and morphological theories of vertebrate equilibrium, and still further into hydrodynamics and philosophical discussions of what constitutes space."

In our daily routine the *vertigo of anemia*, of *neurasthenia*, and of *arteriosclerosis* would seem to me to come oftenest under observation. The two former seem to be closely allied and a distinction as to which is in a given case the underlying condition is at times most difficult. The combination of symptoms indicating them are a mild vertigo, rather frequent, and more or less chronic, with tinnitus, occasionally some deafness, these symptoms being intensified by excitement or exertion. In some of these cases the results of a functional examination together with the patient's general condition point to disease of the internal ear.

Of *Arteriosclerotic Vertigo*, in its prodromal or curable stage, Raymond Clark says, "the subjective symptoms are many and complex;

among the most important are, loss of usual vigor especially upon rising in the morning, indisposition to work, or lessened vitality, slight dyspnoea, headache, drowsiness, neuralgia, pains in the joints, lumbar pains, cold skin, sweating easily, irregular nocturnal polyuria, with as an *extremely constant symptom postural vertigo*, with less often, palpitation, faintness and slight visual disturbances." In the later stages and the "cerebral type," such patients complain of vertigo, loss of mental power, repeated attacks of migraine, giddiness and insomnia, transitory facial paralysis, hemiplegia, aphasia, etc.

In *Leukemia*, aural disease is frequent, 10 per cent. to 33 per cent., the internal ear being profoundly involved, usually toward the later weeks of life. As a rule the onset is sudden, with vertigo, tinnitus, and sometimes vomiting, and immediately or within a few hours, marked or total deafness, due to hemorrhages and lymphomata not only in the labyrinth, but also in the auditory nerve and its branches.

*Neurasthenic Vertigo*, G. R. Butler says, is the most frequent variety either alone, or plus lithemia, and sums it up as follows: "If a patient with a history of overstrain, or congenital deficiency in nerve force, complains of constant weariness, feeling of pressure in the head, and other characteristic symptoms, with vertigo of brief duration and moderate severity, but of frequent occurrence, the vertigo is due to neurasthenia."

*Epileptic Vertigo*.—Vertigo is a common subjective symptom of a commencing epileptic seizure, when loss of consciousness is not the first effect. When the vertigo is obtrusive it may be a question whether the attack be one of epilepsy or of auditory vertigo. The difficulty is increased by the fact that in rare cases this epileptic aura may be attended with a sudden noise in the ear. In auditory vertigo loss of consciousness is very unusual, and even impairment only occurs in attacks of extreme severity. In these there is vomiting and persistence of the vertigo long after consciousness has become normal, a symptom which alone excludes epilepsy. The characteristic of the giddiness which is associated with epilepsy is its occurrence without exciting causes, it occurs when the patient is still. The absence of excitation by movement is occasionally met with in aural vertigo, but its presence is strong evidence of the latter.

*Ocular Vertigo. Ophthalmic Vertigo*.—This form of vertigo is often accompanied by nystagmus, and with evidences of eyestrain—is usually not severe, but rather persistent, and disappears on closure of the eyes. The diagnosis can be made positively only by the disappearance of the vertigo after the necessary corrections, optical or operative, have been made.

*Laryngeal Vertigo*.—Is either a true epilepsy, or a reflex neurosis, probably the latter. It usually occurs in middle-aged neurotic men, with

laryngitis, bronchitis, asthma, etc., and begins with laryngeal tickling or irritation, followed by a short cough, spasm of the larynx, dyspnoea, transitory syncope, and may be slight convulsive movements.

*Essential Vertigo*, of Gowers, is caused by some unrecognizable morbid state—is probably a functional neurosis of the cerebellum—is unaccompanied by any other symptom, is sudden in onset, severe, and may last for several hours—occurs in neurotic individuals.

*Nasal Vertigo*.—A very unusual slight, chronic vertigo due to obstructions in the anterior and posterior nares, spurs, polyps, etc.

*Toxic Vertigo. Smokers Vertigo*, etc., may be caused by drugs like quinine, belladonna, tobacco, alcohol, tea, coffee, lead, morphine, codeine, salicylates, etc., circulating in the blood current and acting on the nerve centers. I would lay special stress on tobacco, alcohol and coffee.

In addition to the above, we have other forms, the simple mention of which will suffice: *Horizontal Vertigo* appears when the patient reclines, ceases when he gets erect. *Lateral Vertigo* occurring while the patient walks alongside of some construction made up of similar parts, like a wall or fence. *Mechanical Vertigo*, sea-sickness, car-sickness, etc., the dizziness from swinging, dancing, riding in elevator, etc. *Rotatory Vertigo* due to rapid rotation of the body, of to looking at rotating objects. *Vertical Vertigo* due to looking upward to, or downward from, an elevation. *Nocturnal Vertigo* felt in the act of going to sleep. *Vertigo Titubans, Vertigo Vaeillans*, vertigo with a sensation of falling forwards or backwards.

*Greenland Fisherman's Vertigo*, an hallucination occurring to an Eskimo fisherman when he finds himself alone in his boat with no land and no other boat in sight, in which he believes his boat has lost its balance so that he rushes from one end of it to the other to restore the equilibrium. (Called also vertigo of the Kayak.)

*Paralyzing Vertigo*, or Gerlier's Disease, an affection of farm hands characterized by sudden paroxysms of ptosis, vertigo, muscular paresis, and cervico-occipital pain.

The following cases will serve to illustrate some of the forms of vertigo, and some of the problems presented in working out its etiology:

CASE I.—*Arterio-Sclerotic Vertigo*. Dr. D., aged 58, was examined October 18, 1909. Gives a history of being a diabetic three or four years, but was working hard up to two months ago; then he began to suffer from evidences of gastric disorder, flatulence, dyspnoea and general weakness. About that time he had a rather sharp attack of angina, the pain having to be controlled by chloroform; three or four days later, developed a hypostatic pneumonia. During the second or third week of this illness, when convalescing, he had evidences of a slight cerebral

hemorrhage, such as twitching of the face, loss of power and sensation in the left arm, with decided slowness of speech; all of these symptoms passed off during the day; two days later had a similar, but less severe attack; both attacks came on while straining at stool—he was mentally clouded, but not comatose. He then went to Liberty, N. Y., and was improving nicely when, on October 1st, while in bed, and turning quickly over to his left side, he had a violent attack of objective vertigo, a little “whizzing” (non-pulsating) in the ears, and some nausea, followed during the same night by two lighter attacks, both brought on by turning on his left side, and relieved by lying on his back. His pulse at this time was rapid, weak, and irregular (his nurse characterized it to me as “generally bad”). For the past five days has again had several slight attacks of vertigo, one of them rather severe. Has never suffered from headaches; nor has he at any time lost consciousness in any degree with his vertiginous attacks. The following report concerning the blood pressure was kindly furnished me by Dr. Merzbach, who referred the case:

		Systolic.	Diastolic.
On Aug. 14th,	}	Right Side . . . . .	160 120
		Left Side . . . . .	170 130
On Oct. 5th,	}	Right Side . . . . .	150 120
		Left Side . . . . .	160 125

The doctor says that for a year past he has noticed some impairment of hearing in the left ear. At present he hears the watch in left ear 2 to 2½ feet, in right ear 6 feet. Tuning forks give evidence of good bone conduction, and a good internal ear. Both tympanic membranes show marked retraction, moderate opacity, and normal light reflexes. We have then as a possibly complicating circumstance for diagnosis some ear trouble. This, however, would seem to have existed for a year or more, and without any reason to think there had been any material change in it within the past two or three months. So that with the evidently bad cerebral circulation it would seem to the writer entirely proper to call this case a pure type of arterio-sclerotic vertigo.

CASE 2.—*Chronic Neurasthenic Vertigo.* Mrs. F., was seen April 14, 1902, when she was 49 years old, and was seen three or four times each year until December 26, 1906. The history given was that for several years (5 or 6, possibly 7) she had been suffering from progressive deafness, tinnitus (in the head rather than in the ears), and feeling of Eustachian tubes being obstructed, with dizziness as a pretty constant symptom. Examination showed both tubes quite free, and a condition of so-called chronic middle ear catarrh with moderate involvement of the internal ear which seemed without doubt to be part of a general neurasthenia. During the four or five years that I watched the case

the local conditions changed but little, the deafness, tinnitus, and especially the vertigo, varying with the better or worse general health of the patient, who was a typical neurasthenic (whatever that may mean?).

CASE 3.—*Acute Neurasthenic Vertigo.* This gentleman, aged 30, sent to me by his family physician, was first seen December 9, 1908, and presented a very interesting diagnostic problem to work out. He complained that he had been deaf in the right ear since boyhood, and that during the past four months he had been much troubled with dizziness. From boyhood until five years ago he had suffered with constant discharge from the affected ear, accompanied by frequent earache and more or less tinnitus, but that during the past five years his only complaint had been deafness until the vertigo appeared four months ago. His dizzy attacks came sometimes daily, sometimes at intervals up to a week, were of considerable severity, and, added to an already nervous temperament, were beginning to impair his usefulness and ability as a business man. The posterior half of his right drum membrane was cicatricial, resting on, and adherent to, the head of the stapes, and indicated no recent inflammatory or suppurative trouble. The history, and appearances, of the ear trouble did not, to my mind, furnish any adequate explanation of why vertigo should have appeared four months ago, and remained. What therefore was there to account for it? I found that the patient had been married in July, about a month previous to the commencement of the attacks of vertigo, and careful inquiry led me to the belief that the vertiginous symptoms were induced and kept up by over-indulgence in his marital relations, and a proper regulation of these was urged upon him. From a recent inquiry of his physician I learn that the subsequent history of the case seems to have borne out the correctness of my assumption of this as the etiological factor.

CASE 4.—*Anemic Vertigo.* Mrs. E., aged 37, visited me at her physician's request on February 16, 1909, and gave the following history: Six weeks ago suffered for two or three days from tinnitus, vertigo, some deafness, heavy feeling in the head and sleeplessness, the tinnitus consisting of a constant rushing noise, rather in the head than in the ears. After a few days these symptoms disappeared, but have returned to a marked extent during the past ten or twelve days. Nothing abnormal was found about the ears, nose or throat. Further questioning developed the fact that her last child was born eighteen months ago, and that menstruation returned either three or four months ago, and had been each time since then “very profuse.” The two attacks of vertigo, etc., described above, came on a few days after menstruation, and the diagnosis of anemia of the labyrinth, and anemic vertigo seemed to me fully warranted.

CASE 5.—*Cerebral Vertigo*. On October 18, 1909, I examined Marie C., aged 28, waitress, a patient in the Jewish Hospital, who gave the following history: About four years ago accidentally discovered that she was almost, or entirely, deaf in the left ear, which deafness has undergone no change, in spite of more or less treatment. Had "sick-headaches" from childhood up to four years ago, at which time she began to wear glasses, with great lessening of the headaches (from two or three a week down to one in a month or two). This improvement lasted two or three years, but one or two years ago began to have a new kind of headache, occipital and running up toward the vertex, accompanied by "noises in the head" (not in the ears). Three or four years ago began to have attacks of dizziness at long intervals. These attacks have increased in frequency, until lately they have become almost a daily occurrence, "much worse when she is out of doors." The vertigo seems to be objective. Dr. Browning, who saw her, makes out no ataxia. Dr. Simmons, who examined the eyes two weeks ago, reports "double choked disc," unchanged two days ago. Examination of the ear shows marked trouble with both the middle and internal ears on the left side (much retraction and opacity of the drum membrane, and very poor bone conduction especially for high notes). Eustachian tube normal. It seems to me more than probable that the ear trouble is a very old one, probably antedating by years her accidental discovery of the defective hearing, and on this basis I gave the opinion that it would seem to me more rational to attribute her vertigo to whatever intra-cranial disease was causing her "double choked disc," than to her long standing ear trouble.

The next few cases will serve to illustrate some of the ear conditions in which we meet with vertigo as a possibly significant factor:

CASE 6.—*Tubercular Otitis Media; Suppurative Labyrinthitis*. Mr. B., aged 38, was first seen by me April 12, 1909. He gave a history of scanty discharge from the left ear for ten days, with much deafness, but *not* preceded by pain. As bearing on the etiology, he says he is much "run down," and has a slight head-cold. The drum membrane was much reddened but not bulged; if a perforation existed, it was so small as to escape detection. Four days later, perforation could be plainly seen, and from this time, in spite of faithful attention to the ear, both at my office and at home, the perforation increased in size, granulations developed, the inner bony wall of the tympanic cavity became exposed, and on July 27th, there was added to the other symptoms marked vertigo with a tendency to fall towards the left, the affected ear, and at this time the tuning fork tests indicated labyrinth involvement. Feeling thoroughly convinced by the course the ear condition had pur-

sued that it was in its essence a tubercular process, I urged strongly prolonged absence from the city under good climatic and hygienic conditions. Before going away he consulted a prominent New York specialist, who coincided in the advice to go away, but advised before he went, that he undergo a series of tuberculin tests. These were made and the report therefrom was negative. On October 13th, he returned from a nine weeks stay in the Maine woods, and reported in a greatly improved physical condition. The ear still discharges, but less than when he went away, and he has no more vertigo. My advice at that time was against a labyrinth operation, but strongly in favor of a year away from business in the city. In this case the ultimate result cannot at present be foretold, but the significance of vertigo as evidence of labyrinth involvement in the later stages of a middle ear suppuration is well shown.

CASE 7.—*Fracture of Temporal Bone; Labyrinthine Vertigo*. James F., aged 32, fireman, three weeks before I saw him, fell four stories, striking on the left occipital region. When I saw him, March 11, 1901, he complained of deafness and constant pulsating tinnitus in the left ear, with dizziness. He says that when he fell he "almost lost consciousness," became instantly very deaf, with loud tinnitus, and intense dizziness. The ear bled for a few days, the discharge then became purulent, and stopped eight or ten days after the accident. He still walks like a very drunken man, but says it is much better than when he first left his bed. He complains of a loud rumbling sound in the affected ear when he walks, and of a somewhat blurred image when looking intently at distant objects. This man remembers having had frequent earaches as a child, and the result is shown in the left drum membrane, which has two large chalk deposits in the upper half, the lower half being cicatricial, and in the scar a recent perforation, due to the accident. That much of his deafness is of middle ear origin is shown by the tuning fork tests, so that the fracture of the temporal bone, and the lesion causing the vertigo, would seem to have been limited to the vestibular portion of the labyrinth, and not to have involved, or, if so, only slightly, the cochlear apparatus.

CASE 8.—*Mumps; Labyrinthine Vertigo*. Miss G., aged 25, was first seen April 13, 1901. Her history was that four weeks ago she had mumps; was up and about in six days; on the seventh day the right ear commenced to feel stuffy, with singing in it, and slight dizziness. These symptoms increased for four days, at the end of which time she could scarcely stand, unaided, even with the eyes open. With the intense dizziness, she vomited more or less for three or four days, and became very deaf, with constant tinnitus. She could only hear loud tones five to ten inches from the ear. The tuning fork tests

indicated trouble with the labyrinth. The vertigo had practically disappeared within two months of its onset, leaving the patient with a probable permanent deafness.

CASE 9.—*Tympanic Vertigo*. Miss M., aged 26, when first seen September 29, 1909, says that she has been, during the past two years under the treatment of various specialists for Meniere's Disease. She gives the following history: Over two years ago she had a moderate attack of dizziness; three or four months later she began to get hard of hearing, and to have tinnitus in the left ear; the deafness has grown slowly worse from that time to the present, while tinnitus, sometimes ringing, sometimes buzzing, has been a constant symptom; six months after the first attack of vertigo she had a second attack, followed by another two or three months later, and from then on the attacks have increased in frequency and severity until now she has four or five attacks daily—often wakes up in the night feeling dizzy—on two occasions has fallen (both times backward),—has never lost consciousness, but feels very drowsy after the attacks, (sometimes before the attacks)—has frequently vomited during the attacks. She has rather frequent and severe headaches, mostly frontal, and not apparently having any connection with, or influence upon, the vertigo. This symptom led me to have the eye condition investigated, especially when I learned that she had worn glasses when at school, but had given up their use nine or ten years ago, but Dr. Wright, who examined her, reported that the eye condition was not such as to offer a probable explanation for either the vertigo or the headaches. The physician who referred the case to me, said that there seemed to be no probable cause for the vertigo either in the gastrointestinal tract, nor in the pelvis. There is a small pad of lymphoid material in the nasopharynx, but not sufficiently large to interfere with nasal breathing. The tympanic membrane is moderately retracted and opaque—looks much in fact as the right membrane—in using Siegle's otoscope the membrane moved very freely *except* the handle of the malleus which seemed to remain stationary, and, during rarefaction of the air in the canal with consequent outward movement of the membrane, marked vertigo was experienced by the patient. The tuning fork tests indicated a "mixed," middle and internal ear lesion. My reasoning was that, since the handle of the malleus was not movable, there must be some ossicular ankylosis, and it seemed to me readily conceivable that such ankylosis might be causing inward pressure of the stapes and consequent disturbance of labyrinthine tension. After eliminating the eye and nose as probable etiological factors, I removed the incus from the affected ear. After the first day or two of slight upset from the operation, and while the opening in the membrane remained, she was entirely free

from vertigo and able to go out and about with considerable assurance of safety, more so than for many months.. However, with closure of the tympanic opening there has been a return of vertigo, but to a much less extent than before. If this does not subside (for the past two or three weeks her vertigo has been almost absent) my next proposition will be the removal of the entire membrana tympani and malleus, with, later, removal of the stapes, if it seems indicated, with the object of keeping the tympanic cavity permanently open. I realize that this case report is in a measure unsatisfactory in that the end-result\* cannot yet be given, but to call this a case of Meniere's Disease certainly seems to me unwarranted because, among other reasons, of the character, onset, and course, of the deafness. Furthermore, the very considerable measure of success already attained would seem to the writer to point the way to an ultimate cure.

The cases that I have outlined to you have been culled from many in which vertigo has been a more or less prominent symptom in the hope that thereby some aid may be rendered to others in the solution of the sometimes complicated problems connected therewith.

#### SOME NEW METHODS OF TEST MEAL AND FECES EXAMINATIONS. THEIR SIGNIFICANCE IN CLINICAL WORK.†

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THERE is no always and no never in medicine—and so it is with test meal and feces examinations in diagnosing gastroenteric affections. Therefore, it is manifest that any means which can bring into easy clinical utilization some of the additional and more difficult (and thus rarely employed) points in laboratory procedure, seems worthy of consideration. Particularly is this true, when by test meal analyses the states of acid-enzymotic secretion, presence of blood, certain bacteria, food, tissue particles and so forth from the stomach give negative findings in the majority of cases of gastric ulcer and early cancer; when, the other than test meal methods of examination have proven worthless in the diagnosis of hyperacidity and hypersecretion of the stomach; when, considering the digestive tract as a whole, the dietetic tests observed from feces examinations so often lead one astray; and when, the states of chronic intestinal putrefactions are more times speculative assumptions rather than accurate clinical diagnoses.

Without wishing to rock the pedestals of belief, teaching and division of internal medicine

\* I am able to report that up to the present, July 21, 1910, the cure has been permanent, without further treatment.

† Read at the annual meeting of the Medical Society of the State of New York, January 26, 1910.

upon which golden gods have rested, it is nevertheless true that clinical observation has shown that much has been advanced in a too definite way, or to have been accepted with but too scant or too theoretical a basis, or to have been passed by with a but too hurried attention.

Among some of these may be mentioned the following: More cases of gastric ulcer exist without hyperacidity than with it.<sup>1</sup> Gastric bleeding is a common finding in acute ulcers during the first days, and, when unhealed, rare after that. Vomiting (the cardinal symptom of severe stomach disease), boring pain (in contrast to simple distress of a hyperæsthetic type which is so common in most other stomach and in many extra gastric affections), and intolerant stomach to foods, all, as symptoms, are seen present in but 25 per cent. of the cases of gastric ulcer, considering all of the twelve forms of ulcer pathologically seen<sup>2</sup>. Cancer, diagnosed early enough for hope of cure by surgery, presents no subjective and often no definite objective symptoms. Collective vomiting of stagnant fermenting foods and achylic fluids containing Boas-Oppler bacilli, lactic acid and blood usually means a mass in the epigastrium, emaciation, cachexia and anæmia and a case too late for hope of cure. Early cancer generally displays a normal or even a hyperacid stomach, and it is shown that in but very few of the early cases does the test meal throw any light upon the real pathology present. It will thus be seen that in these two most important of all stomach conditions (ulcer and cancer), the ordinary gastric analyses may have to be looked upon as suggestive in negative findings, and who among us has the deductive ability or courage of diagnoses of ulcer or cancer in that way. The fibrin strings of the Günzburg and Sahli packages in a patient with an achlorhydric stomach can be disintegrated in the intestines in short enough time to lead one astray in diagnosing the condition of stomach secretion. The connective tissue test of Schmidt in diagnosing states of gastric secretion is likewise found to be worthless in clinical work. In the dog, at least one-third of the connective tissue of meat is delivered into the intestine, and who ever found connective tissue in the feces of that animal? Dietetic methods, such as the Schmidt diets, and particles of food attached to undigestible substances, such as Einhorn bead method, are also liable to be fallacious. Assuming, for instance, that there are present in the bowel large amounts of proteid splitting bacteria, such as are seen in the indolic type of chronic intestinal putrefaction, or large amounts of the carbohydrate bacteria fermentors, such as are observed in the saccharo-butyric type of chronic putrefaction, what happens to the proteid or carbohydrate diet tests and food attachments to the beads—they are disintegrated and the examina-

tion of the feces shows good digestion instead of a most seriously disturbed one. Do all cases of indolic putrefaction show large amounts of indican in the urine? No. The bowels may be loose and the food-bacteria products of putrefaction come away before resorption, or the oxydase in the liver or kidneys may for a time bind it before it can be eliminated and thus the indican, uroresine, or even oxalic acid crystals may not be seen in significant amounts.

The points in examinations of test meals and feces I speak of to-day have at various times been advanced by others and neglected or not utilized. All I offer to you is a modest and simple means making possible the clinical utilization of these matters and some deductions of my own from over five years of work with them, covering nearly 11,000 observations with the tests. You are not to understand that testing test meals and feces by means of bacteria are to supplant the generally employed methods of analyses for observing secretion and motility; but only to be considered as additional methods in the hope of making possible diagnoses of some of the difficult to discover gastroenteric affections.

The tests are made by means of an especially constructed fermentation tube,<sup>3</sup> the upright, closed or anaerobic limb of which has a 15 c.c. capacity and graduated in per cents, and an open bulb of 30 c.c. capacity. The apparatus over all is less than 6 inches in height, will go into a medium-sized incubator, and is constructed so that 25 c.c. sufficiently fills the instrument; and 25 c.c. is an amount that usually can be taken from the return of an Ewald meal and still leave enough for the secretory and motor observations. Into it is placed a portion of the return of a simple or mixed test meal in which the free HCl has been neutralized with a normal solution of sodium hydrate, using dimethyl sol. as an indicator; or for the chemical test of feces 7.5 grams of the soft end of a stool (mushy consistence) or 10 c.c. of a more liquid stool, each of which are mixed in 25 c.c. of sterile water; in the bacteriological tests with media, the tube is filled with a 2 per cent. dextrose-bouillon and inoculated with about 1 c.c. of the test meal, or three or four drops of a watery suspension of feces or a little less amount of the feces itself. In the case of the chemical tests of the feces, the weighed portion of the stool is thoroughly mixed with water in a casserole by means of a common teaspoonful and any very large sticks of cellulose or vegetable substance removed, more feces being added to make up the shortage. The fermentation tube (a) is then placed in the water jacketed oven, where it remains for twenty-four hours at 37 degrees C., when the examinations are made. If at the time of examination more or less floating feces and incorporated gas are seen at the top of the fluid in the upright limb, several fair-sized shot are placed into the bulb, which is

<sup>1</sup> Graham and Guthrie. *New York Medical Journal*, September 4, 1909.

<sup>2</sup> Bassler. *Archives of Diagnosis*, October, 1909.

<sup>3</sup> Bassler. *New York Medical Journal*, September 18, 1909.

then filled with water, corked so that no air from without is present between the fluid and the cork, and the instrument is shaken so that the shot splits up the floating feces, after which the gases that have escaped into the bulb are passed back into the closed limb, the cork is withdrawn, some of the fluid is run out, and the observations made as follows:

First, the total gas content is observed, after which in the chemical or bacteriological feces tests some of the fluid is withdrawn from the bulb and examined for indol and urosesine, and with the nutritive media also for aerobic bacteria, care being taken that the tube is not shaken and that the one or two drops of media taken be from the film on the surface and at different levels under this but not actually down to the crotch between the two sides. The next step in the nutritive media test is to obtain samples of the important anærobic bacteria. These are best extracted by means of a pipette (b) which should be carefully introduced into the lower part of the anærobic limb and about 0.5 c.c. of media sucked up. In tests to note the amounts of bacteria growing at different levels of the fluid media in the closed limb I have found that at the end of twenty-four hours most of the anærobic bacteria are at the bottom of the tube, although they also are scattered throughout the closed limb and thus may be obtained from the upper layer of fluid when the cock has been opened. The carbon dioxide in the accumulated gases is now absorbed by introducing into the closed limb with the pipette 2 c.c. of a saturated solution of sodium hydrate (making sodium carbonate) and the tube is inclined to permit this heavy solution to run some distance up into the closed portion and allowing it to stand for the time necessary to observe that the fluid no longer raises in the tube. In a number of tests to note the accuracy of this chemical method, I have observed that the remaining  $\text{Co}_2$  is never more than from 5 to 10 per cent. of the original amount, and this is close enough for clinical work. The remaining mixed gases are then tested in the twin bottles, they being driven through when the cock is opened by means of attachment (e) and blowing. The reactions of the gases are noted in the first bottle (c), which contains a weak solution of neutral azolitmin (which is a pure litmus about 200 times as sensitive as commercial litmus), a control in a test tube being used to note the color change. In addition to the reaction of the gases, in the chemical and bacteriological feces tests the fluid in the apparatus should be tested with litmus at the filling of the apparatus and at the end of the twenty-four hours note the chemical change. The second bottle (d) contains lead water (sol. plumbic acetate 10 per cent.) to note the presence of sulphurated hydrogen (turns darker or black according to amount present). The hydrogen and marsh gas may be

burned at the drawn tube outlet, but as both burn with an indistinguishable blue flame and as neither of these gases are important in the clinical way this may be omitted.

#### NORMAL STANDARDS.

It is apparent that all tests must have a normal or negative standard to judge results from. In these tests several thousand test meals from normal or neurotic stomachs shows this to be an easy matter, because it is never seen that test meals from normal stomachs or the neurotic conditions of hyperæsthesia gastrica, gastralgia, hyper- and hypo-motility and even hyper- and low acid-enzymotic secretions ever give more than the merest bubble at the top (which is always less than 1 per cent.), and in hyperacidity and hypersecretion of the dietetic or referred forms that same general rule holds good.

This is due, in my opinion, to the facts that the pylorus is normally patent and the motility is not seriously disturbed (thus the organ empties itself in about the normal time according to the amounts and character of the food present), and the fact that the normal gastric secretion can inhibit the growth of such of the bacteria as that are present, preventing them from excessively fermenting the saccharides. But when we deal with the chemical feces tests (watery suspensions) we enter into an uncertainty and difficulty in making definite standards. The reasons for this are that the amounts of carbon dioxide, hydrogen, nitrogen, sulphurated hydrogen and marsh gas, and even the reactions, vary, depending upon the character and amounts of food, upon the kinds and amounts of bacterial flora present from the ileum down, and the functioning power and pathology of the gastroenteric canal and the accessory organs of digestion.

#### ESTIMATES OF DIFFERENT GASES OBTAINED FROM FECES IN VARIOUS DIETS IN NORMAL INDIVIDUALS.

Diets.	Hydrogen.	Nitrogen.	Carbon Dioxide.	Marsh Gas.
Milk . . . . .	50%	30%	12%	0.09%
Meat . . . . .	2%	56%	10%	31%
Vegetables . . . . .	3%	37%	37%	50%

Sulphurated hydrogen in small amounts is present in all.

To arrive at some standard of gas result from watery suspension of feces from normal individuals with my method I have made observations of feces from nineteen apparently normal persons, and comparing these with the many tests of feces from abnormal individuals I have come to the following conclusions: The Schmidt and Strassburger test diets (first No. 2 and then No. 1) do not give better results than does the combination of the daily mixed diet that the individual ordinarily uses followed by a strict meat and water and a strict carbohydrate and water diets. For these reasons, I have discontinued the use of

the difficult to institute and carry out Schmidt and Strassburger diets and have employed the three separate diet tests instead. The Schmidt diagnosis of "fermentative dyspepsia" is a most vague and impractical one for clinical work and means but little to base our therapeutics upon. The gas results from the diets I have suggested may be mentioned from 10 to 30 per cent. for the ordinary mixed diet; less than that, from 5 to 20 per cent., for the meat and water diet; and more than the ordinary diet for the carbohydrate and water diet, namely from 15 to 40 per cent. On a strict meat and water diet it may fall to one-half, and on a strict carbohydrate and water diet it is usually higher. The reaction of the fluid should always remain neutral, never becoming definitely acid or alkaline.

With the use of the nutritive media inoculated with test meals from normal stomachs up to 5 per cent. may be taken as the normal limits, and when inoculated with feces, from 20 to 30 per cent., never below or above these figures. With the bacteriological tests, special diets are not important and in fact are not advisable. Other points here are that the reaction of the gases should never become definitely acid or alkaline, or perceptibly large amounts of indol or uroresine be present in the fluid at the end examination.

#### CLINICAL DEDUCTIONS FROM THE ANALYSIS OF TEST MEALS.

*Stomach.*—Gas generation from test meals depends upon three stomach conditions, the state of acid-enzymotic secretion, the dynamic conditions, and amounts of bacteria according to the gastric conditions, and these to a greater or lesser extent conjointly influence the result according to the gastric conditions present. Sufficient secretion of hydrochloric acid acts as a germicide, and good motility with the pyloric region patent shortens the time that food remains in the stomach, and thus is also germicidal in the way of emptying the organ. When, however, these are interfered with, the bacteria may proliferate and thus gas may be formed. In ulceration and cancer (which at autopsy is generally found more or less ulcerated on the exposed surface) the stomach functioning conditions may be normal or even above normal, and still the local pathology present cause the generation of large amounts of bacteria, and these may be so abundant that the saccharides of the test meals are fermented by them. The gas results from each case must be figured along these lines. That is, an Ewald meal of 60 c.c. return, of which 10 c.c. of filtrate shows a free HCl. of 30 degrees, a combined HCl. of 30 degrees, and this meal a greater than 2 per cent. of gas result, more significantly points to ulcer or cancer than one of like amount of return and gas result having only half as much HCl. content, although in my experience even the latter would be significant enough.

*Acute Gastritis.*—The vomitus or a test meal

removed during an attack of acute gastritis shows an achylic return with undigested fermenting foods, and, because of the butyric and acetic acids present, gives a gas result perhaps as high as 10 per cent. and also the presence of the volatile acids in the reaction bottle.

*Moderate Grades of Chronic Gastritis Low in Acid-Enzymotic Secretion.*—Test meals from these states show a low acidity and enzyme secretion, increased mucus and slight food retention, a gas result never above 5 per cent. from the neutralized test meal, and often the volatile acids in the reaction bottle.

*Atrophic Gastritis.*—The achylic test meals from these cases usually show a larger gas result than 3 per cent., most times neutral in reaction, but may be acid, most of which gas, however, is carbon dioxide from fermentation of the starch of the test meal, the alcohol going into solution in the fluid. True fermentation seen in states of gastritis, versus neurological conditions in which eructations are present, can be differentiated by the presence or absence of gas results in the apparatus.

*Gastric Ulcer.*—The sero-sanguinous vomitus from acute ulcer often shows as high as 10 per cent. of gas even in the face of a high acid secretion in the stomach. In test meals from acute ulcer cases a higher than 2 per cent. gas may be noted, and this taken in conjunction with a highly acid test meal is significant of ulceration even when no blood, pus, etc., are present. In latent ulcer, because of a slight degree of stagnation and the presence of crypts for the proliferation and lodgment of bacteria at the ulcer site, a greater than 2 per cent. of gas may be observed. In alimentary gastrosuccorrhœa, or gastrosuccorrhœa periodica, a negative gas result is noted from the test meals. But where the gastrosuccorrhœa is post-ulcer in nature (chronic hypersecretion) a greater than 2 per cent. gas result may be seen even with the presence of a highly acid stomach, making possible, in many of these cases, the diagnosis of post-ulcer hypersecretion and for which surgery offers the only hope of cure.

*Gastric Carcinoma.*—Clinically, these cases may be divided into those with and those without the normal stomach secretion. With those having acid-enzymotic secretion and a definite or suggested history of ulcer, in whom test meals, constantly, intermittently, or never show the presence of blood, but which still give a greater than 2 per cent. of gas result with neutralized meal are most times operative in nature—the complete diagnosis of cancer being made at the time of operation or after that by the pathologist often to the surprise of all concerned in the case. It is as near perfect as is now possible to decree that a case is surgical in nature, and with the patient and surgeon take your chances that the harmless exploratory incision will dissipate the tentative diagnosis or raise the estimation of your opinion of yourself as a diagnostician in stomach



disorders to a level which will last you as long as you live. With pyloric cancer having achylic stagnation, large amounts of Boas-Oppler bacilli in the stomach and feces and the constant presence of blood, the gas result, from the excessive carbohydrate fermentation, is high, running even up to 30 per cent. in signal cases, but usually above 2 per cent.

Kindly remember that I do not claim that every case of ulcer and cancer even under apparently ideal conditions gives gas results of value. In medicine, almost all laboratory tests are only of value when positive, and they do not necessarily make for other diagnoses when they are not. Further in significance, these tests are not to be looked upon in gastric cases to the exclusion of the history, examination of the patient, and the other well known details of test meal examination, or those of the just as important fasting stomach contents and generally employed feces tests.

*Benign Pyloric Stenosis.*—In these the proteids in the stomach may be split up by the bacteria present and cause the generation of sulphurated hydrogen. Such test meals will show a gas result, the lead water in the second bottle turning darker as this bubbles through, and perhaps an alkalinity from ammonia in the first bottle. The decomposition in cancer stomachs is mostly a fermentation of the carbohydrate products, still, in some cancer cases, proteid putrefaction is present, so that in the distinction between the two types of pyloric stenosis, the presence of sulphurated hydrogen is only to be taken as suggestive of a benign condition.

*Intestines.*—Local disorders of digestion in the intestines, in my opinion, make up far more cases of affections of the digestive canal than those due only to local disorder in the stomach. In his work with Krehl, Cohnheim<sup>4</sup> studied the problem experimentally, and found, significantly, that it was almost impossible to produce functional derangements of the stomach by direct injuries to the organ itself. Using dogs which had been provided with both gastric and intestinal fistulæ, these investigators showed that injury to the intestine affected not only the functions of the intestines but also to a marked degree those of the stomach. They were able to prove that following an injection of magnesium sulphate (Epsom salts) into the intestine that the amount of stomach secretion at the succeeding meal was increased to nearly double, while after a similar injection of a strong solution of sodium chloride (table salt) the amount produced by the meal was less than one-half. Analogous changes were produced in the total acidity and in the length of time required to empty the stomach. As judged from many observations of feces tests and treatment for these conditions in cases of chronic intestinal putrefactions, a constantly low running degree of toxæmia from the bowel can be shown

to have an etiological bearing upon many of the cases of disturbed sensation, secretion and motility of the stomach, and, contrary to what our sense impressions have taught us, we must seek the origin of many gastric disturbances in the intestine, rather than consider them as only gastric affections or neurotic ones referred from parts other than the digestive canal. In the discussion of a paper on indicanuria at the annual meeting of the American Medical Association last June, I pointed out that, contrary to the general teaching, a marked type of indolic putrefaction may and often does exist with a high stomach secretion and motility. In my records of 127 cases of indolic putrefaction, 79 showed a hyper, or normal acid secretion, and in the 48 in which this was below normal or absent, 34 subsequently gave evidence of improvement in the stomach secretions when the bowel conditions became improved. Thus in gastric work the feces test for bacteria should never be omitted. Indicanuric conditions (which as a clinical entity is no more significant to me than œdema or cough would be), must be looked upon both as an aggravator and depressor of stomach secretion, and the stomach conditions mentioned are not to be considered as neurotic in nature unless the bacteriological feces examinations are negative. For the basis of these intestinal conditions the most useful clinical classification is that of Herter,<sup>5</sup> namely, the indolic, saccharo-butyric, and the combined forms. Considering that from the bowel a normal individual voids about 126 billions of bacteria a day of many different types and that the performing of culture methods for segregation are almost impossible for clinical work, the apparatus method answers well and to better clinical purpose for diagnosis than a simple Gram differential stain of the raw feces. Fortunately, there are three main anærobes prominently found in all of these cases, and each of these grow well in the closed limb and on the media mentioned. They are the bacillus coli communis to note the indolic form, and the bacillus aerogenes capsulatus and the gram positive diplococci to note the saccharo-butyric form, and thus when any of these bacteria grow in wild and predominant proliferation in the media the diagnosis and therapeutics in the case are suggestive.

#### GENERAL REMARKS AND NORMAL STANDARDS.

In healthy man, the natural secretions of the intestine with the defecations hold the bacterial content down. Under ordinary conditions there are few colon bacilli in normal feces. Most of the bacteria are present in the colon, where the anærobic conditions for their proliferation are perfect. The putrefactive processes are due mostly to the anærobes. As a rule, a patient on a meat diet, harbors less organisms, and thus less gas, than those on a mixed or carbohydrate diet, but this need only be considered in a relative way

<sup>4</sup> Otto Cohnheim. Harvey Society Lecture, December 4, 1909.

<sup>5</sup> Herter. Bacterial Infections of the Digestive Tract.

in the bacterial tests. Indol from putrefaction of the proteids is not due to tryptic digestion, but to bacteria, and mostly to the bacillus of the coli group and not the bacillus *aerogenes capsulatus* or *G. P. diplococci*. As the liver and renal cells, if normal, produce enough oxydase to bind the indol but very small amounts of indol appear in the urine. But if the supply of indol be great, or the liver and kidney function be deficient, larger amounts of indol are supplied to these organs and, being unbound, appears in the urine, and then the irritating effects on these organs, as well as other structures in the body, are produced.

Human bacillus coli communis have practically no power to dissolve and peptonize native proteins, but when these are first affected by the other organisms, the colon bacilli are able to energetically cleave the peptones and give rise to ammonia, volatile fatty acids, phenol, indol and hydrogen sulphide. The bacillus *aerogenes capsulatus* is a most abundant gas-making organism in dextrose bouillon cultures and generates hydrogen, carbon dioxide and butyric acid. Therefore, because of the mixed association of these and other influencing bacteria in the gut, the gas result from nutritive media in a general way must not be considered as too clinically distinctive. Nevertheless, as paradoxical as it seems, in the true cases of the saccharo-butyric type of chronic excessive intestinal putrefaction the gas result is generally low, usually only from 5 to 13 per cent., whereas in the indolic form this may run as high as 80 per cent. The normal standard I employ is that of gas from 20 to 30 per cent. It should be recalled that in a normal individual with the feces and water suspension, a meat diet gives a lower gas than the ordinary diet, and a vegetable higher than the ordinary, while in the states of chronic excessive intestinal putrefaction, the indolic type (due mostly to bacteria proteid cleavers) gives a higher than normal, and in the saccharo-butyric type (mostly bacteria carbohydrate cleavers) a lower than normal. Therefore, a patient whose feces gives a higher than normal gas result in nutritive media should be placed upon a strict meat diet and the watery suspension feces test performed, and if in this the gas is higher than the meat diet should normally be, the diagnosis of the indolic form is suggested; and to reverse the method, when the gas result in the nutritive media is less than normal, the patient should be placed upon a strict carbohydrate diet to see if the gas from watery suspension of feces still remains below what is ordinarily seen in an individual on a strict carbohydrate diet, at which, when positive, the diagnosis of the saccharo-butyric form is suggested.

But to arrive at these diagnoses to a more conclusive extent the urine must also be examined for the different substances, and also the bacteria grown in the nutritive dextrose bouillon stained and examined. In the indolic and combined

form, indol in large amounts is present in the urine; in the combined to the least extent, but none at all in the true saccharo-butyric form, in which uroresine (Jaffé test), large amounts of oxaluric acid crystals and phosphates are more commonly seen. With the Gram differential staining method the bacilli of coli group, being Gram-negative, are stained with the counter stain (red with carbol-fuchin), and the bacillus *aerogenes capsulatus* and diplococci, both Gram-positive, staining violet with the gentian violet, the distinction of colors serves well to differentiate them. The organisms of colon group are very small, the bacillus *aerogenes capsulatus* very large, like thick rods, and the Gram-negative diplococci are also quite large and easily distinguished. In both types of putrefaction these organisms are found in the closed limb of the apparatus and easily observed.

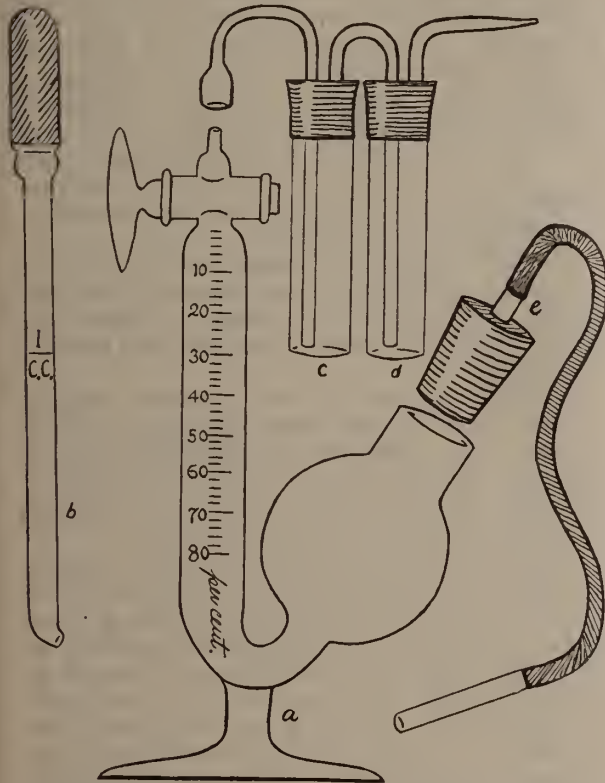
#### TYPES OF CHRONIC EXCESSIVE INTESTINAL PUTREFACTION.

*Saccharo-Butyric Type.*—This is a most common affection, widespread among children and adults, and the most common of the three types. According to the degree of the condition and length of time it has existed, symptoms develop and these may be expressed in the clinical conditions called intestinal indigestion, irritability of the intestines, the various secretory, motor and sensory disturbances of the stomach, intolerance to taking sugars and starches, fats and acids, obscure anæmias, debility, loss of weight, diminution of muscular power, premature senility, loss of sexual power, and in children, chronic state of subnutrition and tardy development and lack of resistance against acute infectious diseases, and, in both the adult and child, special liability to catarrhal affections, particularly those of the upper respiratory tract. It is probable that this and the other types will some day be proved to be the etiology of many of the to-day disease of obscure origin.

*Combined Indolic and Saccharo-Butyric Type.*—This is the next common form, and among the clinical conditions seen may be mentioned psychic disturbances in the emotional sphere of both the irritable and depressed forms, anæmia, loss of strength, weight, and ability to attend to ordinary business occupations without great effort, a chronic low state of body and then finally a pronounced invalidism from damage to the nervous system, insomnia, multiple neuritis, progressive muscular atrophy, perhaps pernicious anæmia and more probably the pseudo form, and most often various forms of disturbances in gastric digestion.

*Indolic Type.*—This is the least common form, and is seen in the marantic, large-belly type of chronic intestinal indigestion on children who later show myasthenia and retardation of growth; and in the adult, in the neurasthenic, debilitated type of individual in whom "a chronic indicanuria" is sufficient enough diagnosis to stamp

him as a worrisome patient on our hands for long periods of time. Among these poor unfortunates are seen the symptoms of obstinate constipation, headaches, mental confusion, catarrhal affections of the respiratory tract, gastric and intestinal atony and all of the functional disturbances, prolapse of the viscera, chronic invalidism and inability to stand work or mental strain, anæmia and subnutrition, and lastly and most important of all, a number of the intractable cases of the great American disease—neurasthenia.



BASSLER'S GAS, CHEMICAL AND BACTERIOLOGICAL APPARATUS FOR THE EXAMINATION OF GASTRIC CONTENTS AND FECES.

### NEURASTHENIA.\*

By F. HOWELL GREENE, M.D.  
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**N**EURASTHENIA is one of the most common and one of the most important diseases that the medical profession has to contend with.

It incapacitates its victim from performing his or her duties of earning a livelihood or taking care of a family, and removing, for the time being, their usefulness from the world of toil and care, and often permanently changes

his or her disposition from a pleasant, genial person, to one whom "The world always owes a grudge," with no ambition to advance, but constantly finding fault and shifting from one thing to another.

As its most common appearance is between the ages of *twenty* and *fifty*, it will, in the case of husband and father, take his much needed support from the family for, on the average, *two* years, thus throwing the burden of support on the wife and family; and in the case of wife and mother, will for the same length of time, remove the motherly care, which the small children so much need, and, not only be a burden to the husband and family, but at the same time a bad example for those growing children, who learn by imitation, and who are taught to grow up nervous wrecks, with warped mentality, fit subjects for future cases of neurasthenia.

It is a disease that existed before the practice of medicine was removed from the profession of theology and surgery from the barber, and is common to all nationalities, but not recognized until Beard, of New York, in 1869, called the attention of the medical profession to a nervous state or condition, marked by irritable weakness, to which he gave the name of neurasthenia, now known to the profession by various names, viz.: nervous prostration; spinal irritation; nervous exhaustion; Beard's disease, and at one time, jokingly, called by the European profession "The American Disease."

*Definition.*—Neurasthenia is a nervous disease, characterized by a reduction of all forms of nervous energy; psychic, motor, and organic; with many subjective, and few objective symptoms.

*Etiology.*—Predisposing. Nine-tenths of our neurasthenics have inherited a sensitive nervous condition from parents who are not psychically stable, or who have lowered vitality and nervous vigor from abuse or disease; as indulging in excesses, gout, tuberculosis, rheumatism, syphilis, etc.; together with improper training from their parents or those to whom they are intrusted for care at home, and their teachers at school, during their developing stage—childhood—especially during adolescence, also, the undevelopment of the muscular tissue of these growing children, with too much care devoted to his or her book learning and not enough practical training of the mind to meet the emergencies that come to a more or less strenuous life. Thus they are thrust into a life of business or pleasure with an inability to practically look work or trouble and disappointment squarely in the face, and to make the most of what they have at hand.

*Exciting Cause.*—Neurasthenia seldom appears before the age of twenty or after fifty; more often after fifty than before twenty;

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hence it is a disease that manifests itself during the working years of man, who often undertake to do more than his or her nervous system is trained to stand.

Both sexes are affected in about equal proportions, perhaps women more often than men. It is more frequent in those locations where the greatest amount of physical and mental strength is required—hence the extremes of climatic conditions, and where competition is the greatest in whatever vocation is followed.

Among the immediate exciting causes are found, loss of sleep, over study, poor assimilation, anxiety, fear, over stimulation of a weak nervous condition by excitement due to business cares, which state will be followed by mental depression, over-training in the athletic field, eye strain or any affliction that disturbs the reflex nervous system; the debilitating effect of the excesses; as alcohol, tobacco, venery, masturbation; with its season of remorse and poisonous information which the quacks scatter broadcast; sensitiveness toward the sexual organs; thinking they are undeveloped or unnatural or diseased; fearing they are not fit to get married because of their unnatural condition, and having too much false modesty to seek medical advice before the damage is done, also, the toxic states; as, lithemia, syphilis, malaria, constipation, dilated stomach or colon; trauma or the narrow escape from death or injury by an accident; fright often produces a greater nervous shock than actual injury, a depressing mental blow; as, without warning, hearing of the injury or death of a near relative or dear friend.

It is often quite difficult to learn the exact immediate exciting cause, but by careful search we will find something that depresses the mind of the victim, and from which it cannot recover even though it in itself be trivial to the normal mind, and known to be such by the patient.

*Pathology.*—Although the pathological anatomy is not known, its manifestations are those best explained by a diminished dynamic energy and lessened recuperative power in the cerebro-spinal axis, and especially in the cellular elements. This may be due to a nutritional defect, following overwork, over mental strain or physical fatigue, disease, or poor digestion, when some shock to the nervous system takes place which produces some change in the nerve cells that may be likened to their partial magnetization, rendering them unduly sensitive to impressions or suggestions.

*Symptoms.*—The symptoms of neurasthenia are numerous and varied. They may simulate any of the graver diseases, probably through suggestion.

Some of the most constant symptoms are, headache, vertigo, backache, pain, gastro-intestinal atony, neuro-muscular weakness, insom-

nia, mental depression, and mental irritability, nearly always having some *one* subjective symptom that constantly entertains the mind of the victim; and around which the other symptoms seem to group, but taking a lesser place in his estimation, and explained by him to be the result of the disease of which, he thinks, this one prominent symptom is a positive indication.

Headache is one of the most common symptoms, occurring in nearly every case, or may be brought on by mental or physical labor or emotion. Usually it is occipital, described by them as being at the base of the brain; thus showing the gravity with which they hold this symptom. It may extend down the back and sides of the neck, giving them the sensation of contracted muscles. It may be frontal, vertical, or temporal. It may at times be very severe: "splitting," and at other times dull, or in its place may be the sensation of weight on the head, or of the skull moving, or empty, or too small for the brain.

Vertigo is not so constant a symptom as headache, although in some cases it is the one prominent symptom, so much so that the patient dare not venture from the bed for fear of falling.

Backache is nearly always present, usually in the small of the back, radiating upward between the shoulders, and downward through the loins into the limbs. This is increased by fatigue, especially from walking or standing; the latter more readily producing it.

*Pain, Tenderness and Burning.*—One or more of these are fairly constant. Pain may be in any of the nerves, frequently shifting from one to another, and sometimes, described as "burning pain." Its most common site is in the intercostal nerves, often on the left side, over the heart, which gives the patient the impression that he or she is suffering from neuralgia of the heart. Tenderness is usually present in small areas along the spinal nerve roots; their common sites being in the upper cervical at the occiput, angle of the scapulæ, waist line, at the top of the sacrum, and over the coxyx. These symptoms may be attributed to malnutrition.

The gastro-intestinal disturbances are simply those that follow any condition of mental depression. The secretion and flow of the elements that perform digestion are controlled by the sympathetic nervous system, and mental depression retards, or inhibits this important function, which, in this disease is doubly important, because the poorer the digestion the lower the vitality, and the lower the vitality the more distressing the disease; thus tending "to make a bad matter worse." So here we have one of the greatest factors in making neurasthenia chronic.

Sometimes our neurasthenics are good eaters, consuming more food than they did when

in health, but this condition usually appears after the disease has progressed for some time. It may even occur in those in whom the disease was ushered in by an attack of acute indigestion, from which they do not seem to wholly recover, and may have stomach trouble for months, when an improvement in this condition will take place, so much so, that they have enormous appetites. One of the conditions which we often notice in these cases, is a very fetid breath; the odor may be so strong that it will be almost impossible to remain near the patient for any length of time. This odor is probably due to improper oxydization, and the throwing off of fatty acids through the lung tissue.

Neuromuscular weakness is more apparent than real; it is a psychic condition, unless malnutrition or disease has weakened the patient, in which case it is from the malnutrition or disease.

Mental depression and mental irritability are the essential factors of the disease; in short the disease itself, around which all of the other symptoms are grouped.

Insomnia is one of the first symptoms to appear and may be very distressing, but after a greater or less period of time usually improves, allowing the weak nerves to rest and be followed by improvement in the general physical and mental condition.

Circulatory disturbances are very common, and is one of the things that seem to impress the victim as of having some serious heart disease, which he feels may carry him off at any moment. They may have all forms of nervous irritability of the heart, as intermitting, throbbing sensation, palpitation, etc. I saw one case in which the heart would beat twice and skip once, and continued to do so for many weeks. After this patient had improved, his heart's action was perfectly normal, without a shadow of disease.

Frequently the pulse is rapid, from 90 to 140.

The sexual appetite is usually diminished or lost. The patient often having fear of sexual intercourse. A large percentage of the men have frequent seminal emissions, which, almost invariably, is followed by severe mental depression.

The mental disturbances are marked. The minds of these sufferers are preoccupied by one overpowering thought: "That terrible distress," and their pity for themselves, constantly thinking the problem over and over to the exclusion of all other mental work, and without a severe effort on their part cannot fasten their mind for any length of time on anything else. Their thoughts constantly running in that one course, the monotony of which is very fatiguing to the mind, to say nothing of the overtime they put in thinking of themselves and their condition, and what they would do "If they were well like other people."

They love to tell their troubles over and over to any one who has a sympathetic ear, to meet others who have had a like condition, and compare notes, apt to cry when talking of themselves, and seem to think they are the only person to receive attention, losing all pride in their work, and often in their dress and manner towards their family, compelling the wife, husband or friends to do their work and see that the family is cared for.

Frequently they are constantly wishing they were dead, but are very prone to avoid doing anything that they think would in the least expose themselves to danger; as they say: "Not that I am afraid to die, and wish I would, but"—

However, a few of these cases do commit suicide.

*Diagnosis.*—The diagnosis of neurasthenia is usually easily made, from the mental and physical weakness, combined with gastrointestinal atony, backache, headache, insomnia, a heart that palpitates easily, and the minute details with which the patients give their symptoms, together with a physical examination that shows nothing to account for the symptoms given to be so severe.

However, we may be misled by the patient giving a train of symptoms which he or she has learned from some other patient who had or is suffering from some graver disease, or from reading those symptoms, having had that disease suggested to them when their minds were in a proper state to receive that suggestion. These cases may be difficult to diagnose at first. For example, a patient of the proper age may come to the physician with symptoms of the beginning of cancer of the stomach or alimentary tract, or they may present themselves with pain in the appendicular region or in the ovaries, or with symptoms of ulcer of the stomach, tumor of the brain, etc., in such cases one should be more guarded in the diagnosis, which can only be cleared by careful study. The best differential diagnostic symptom is the minute details with which the symptoms are given in neurasthenia, and is nearly always present in the severer forms of this disease.

*Prognosis.*—The outlook for the patient remaining on earth for many years is good. Usually after many series of improvements and recessions, extending over a greater or less length of time, average two years, the patient will awaken to the fact that he or she is no worse than they were months previous, and will take less serious the periods of depression and become interested in something else; and finally become a fairly well person, although they seldom have that old interest in their work that they did before the attack, having periods of depression, and easily discouraged. Some never take any interest in

anything but their own comfort. On the other hand some have learned their lesson, and return to their field of activity with a much stronger determination to succeed and having gained wisdom, do "make good." Summing it up all will improve unless he or she be born with laziness that nothing but starvation or persecution will banish.

Death may come to some, especially when it takes on a severe gastro-intestinal type and they die from starvation.

*Treatment.*—The most important treatment is the prophylactic. The foundation for the greater number of cases is laid at home or in school; and to get to the bottom of this disease we will have to commence with the parents for their home life, and the teacher's preparatory schools, viz., the colleges for women, for their school life.

The parents should avoid all demonstration of nervousness, all complaining, whether of hard luck or ill health, in the presence of their children, and should teach them to grow up strong mentally and physically, teaching them it is mental weakness, cowardice, and not a thing to be tolerated by them or society to manifest a disposition to become nervous especially from slight provocation. They should teach them to try faithfully to succeed in their undertakings, which they cannot do if they become nervous or given to worry. Characters who have strong wills and steady nerves should frequently be pointed out to them and admired, showing the children that it was by virtue of that strong determination and those steady nerves that success was attained or defeat taken manfully.

They should be taught not to be unduly impatient, that failure at first often leads to greater success in the future; that worry is a severe handicap, a habit that easily grows if at all encouraged, and hinders or prohibits success and may lead to the downfall of the strongest mind a thing to be shunned as a venomous serpent would be, instilling fear into the mind until the natural sensations of a normal body are magnified to premonitions of impending danger of permanent ill health, loss of mind, or death.

They should have plenty of fresh air, and physical exercise, not to the extent of exhaustion. Encourage clean, healthy out-door sports, in which competition is a factor. Their muscles should be developed first, and minds afterwards; that is do not pay too much attention to book learning in the first years of a child's education. It is of little value until the children are old enough to reason for themselves and understand what they are learning. A good healthy physique is essential to have broad-minded mental faculties and steady nerves.

In their school life it is of prime importance to have conscientious, broad-minded teachers,

who realize that they have undeveloped human minds to develop; minds, that in a few years will be the brains of the nation if properly handled. Therefore, these teachers should have proper and thorough training for this important work.

For this training we should commence with our colleges for women, because their graduates become teachers in our normal schools, the faculties of which are largely made up of women, and they in turn instruct the pupils who become the teachers of the developing children. A large percentage of these pupils who become teachers are young women. Therefore, it is of prime importance to have their teachers properly instructed in the ways to teach these young women in training, the necessity and methods of developing strong mentality in their charges.

Teachers should observe their pupils, whether of high or low social standing, and study their home life, the sort of parentage they have, and their natural dispositions, unmodified by instruction, best observed while the children are at their games, making each student a subject of study if possible, developing their mind above any mental or moral weaknesses discovered and carefully prepare that child's mind to face work, worry or defeat with the least amount of nervous shock. Should they find a child whose father or mother is weakened, either psychically or by disease, the greater the need of that training, because that child has not a fair chance with the children born of healthy parents.

It may seem far-fetched to lay the blame for many cases of neurasthenia to the door of our college instructors, who of all people, from their high state of mentality, are in a position to make or mar our young people's ability to withstand the storms of strife, but it is too true.

It is heart-rending to see a young girl of the middle or poor class striving to obtain an education in the higher schools. She starts out with high hopes, for she may have been considered one of the brightest pupils in her classes, which were made up largely of her own social standing. But when she enters college is compelled to mingle with and compete with girls of a different social standing, having everything that money will buy and the advantage of associating with a more cultured class of people. Thus at the outset she is handicapped by her wealthy sister. That poor girl has just as truly a normal woman's desires and characteristics as the more fortunate one, and she loves the same nice things and the same attention from her teachers and associates as the wealthy one. She cannot afford them; her pride is injured, and she becomes unduly sensitive to any slight, either imaginary or real. She has few associates among her classmates because she cannot

afford to dress as they do or keep up her end with them in the matter of entertainment or culture.

Since money and high social position are the gods worshipped by many, college instructors not excepted, these do not dare offend their owner without exceptional good reason; the poor girl must stand aside and let the wealthy one have the best of everything, while she is made to feel her position, often to such an extent as to make her so uncomfortable that she always appears to a disadvantage, causing her to become so sensitive and nervous that she cannot keep up with her work, increasing her worry until she has a nervous break-down, and swell the ranks of those who fail, a finished product of thoughtlessness.

Some college instructors seem to forget that *all* of their students are members of the human race, treating some of them worse than they would their dog. Their sole idea is to impress the minds of the students that *they* hold an exalted position and are invested with authority, and say such disagreeable things to the timid and unfortunate ones as to humiliate them, making the gap between teacher and student as wide as possible, thus placing themselves out of sympathy with their students and at the same time training those who in the future become teachers to treat their pupils in like manner, and so on down the list of schools, from the highest to the lowest, favoritism to the popular and humiliation to the unfortunate.

The remedy for this distressing condition can best be solved by the physician to whom the cases of neurasthenia come, and when he finds the disease to be brought on by improper treatment from instructors, something should happen that those teachers would remember.

We have laws preventing or regulating corporal punishment, but nothing for that far more dangerous treatment, unjust mental humiliation, which may forever warp and wither a mind that has every promise of being brilliant.

Corporal punishment, in the majority of cases, administered with reason and given in the proper spirit with due severity to the case at hand, shown to be a necessity brought about by his or her willful disobedience to the rules or regulations of the school, is not only harmless, but beneficial to the moral and mental training of the child who has a disposition that will allow himself or herself to willfully defy the teacher. Many a man dates the beginning of his advancement toward success in life from the time when he received a sound thrashing, as a boy, for some thoughtless or careless conduct. But the damage that may be done to a sensitive child's mentality by a nagging, hysterical, arrogant, weak-minded teacher, who knows little and cares less about

a child's natural, normal desires, hopes, and weaknesses, is beyond conjecture.

The treatment of the case as it presents itself to us is usually simple. If possible the patient should have a change of scene, away from family or sympathizing friends, with a companion adapted to those cases. Give proper rest, judicial exercise, at the same time give them tonics and do every thing to promote improvement in their physical condition, attend to their diet, promote elimination, and stimulate their depressed nervous system, see to it that they get plenty of sleep, if possible not induced by drugs, but rather by following the laws of nature.

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### THE EXAGGERATED FEAR OF THE HOSPITAL AND OPERATIONS.\*

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THE reason for my writing a paper on this subject is because of the great fear that so many people have of the hospital and surgical operations in general. This fear seems especially marked among people living in the country at some distance from a hospital.

The question naturally arises, is this fear a reasonable one or does it arise from the fact that when a patient from any of the small villages goes to a hospital it is the "talk of the town." Should that patient die while in the hospital everyone in the village knows about it and talks about it much more than they would had he died in his own home. "He died in the hospital." The question does not occur to them, did he undergo an operation, or did he die of some condition that had already progressed so far that no operation could be performed? The fact to them is, "He was taken to the hospital and died there and I am not going there to die." The same thought is many times expressed as follows, "They took him to the hospital and operated on him and that killed him." Of course it is considered that the operation was the direct cause of death, even in the case of an inoperable carcinoma in which an exploratory was done without perceptible effect on the patient's strength, and it was the original disease that eventually caused the death.

This is an argument against doing ever so slight an operation on a hopeless case. If the patient dies, other people hear of it and fear a necessary operation, no matter how simple it may be, or how free from danger. In the minds of the public, all operations are serious and most patients are supposed to die who undergo them.

The history of the following case well illustrates the above statement. A young married woman came to me for examination who had a

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\* Read before the Medical Society of the County of Albany, October 13, 1909.

small adenoma of the breast. I endeavored to explain to her that it was not a serious condition and that it could be easily removed under cocaine and that she could attend to her daily duties just as if no operation had been performed. She said she would have it attended to in a few days. I heard no more of the case for several months. Then her husband reported that "because of her fear of the knife, she had consulted a cancer specialist. He had informed her that her case was serious, it was a cancer, but she need not undergo an operation as he could easily remove it with his special cancer paste." She had the application made; the growth was removed and the entire breast as well, and she was confined to her house for three months. Her fear of a little operation that could have been easily performed under cocaine in five minutes caused her to undergo three months of suffering and the loss of entire breast. To the best of my knowledge that "quack" is still applying his cancer paste to all foolish patients that go to see him. I say all patients, for did you ever hear of any person who went to one of those "cancer specialists" whom he did not tell that she had a cancer? What a great good the anti-vivisectionists could do if they would spend their energy and money in the good cause of prosecuting quacks and fakers instead of endeavoring to get troublesome and needless bills passed by the Legislature.

Among city people, or people who are frequently about the hospital, there is much less fear of an operation. They see the 99 cases that regain their health as well as hear of the one that died.

Is the time ever coming when the public will know that it is seldom the operation of itself that causes death. The cause of most cases of death is the fact that the disease has been allowed to progress too far before they will consent to an operation. Had the operation not been delayed because of needless fear until the patient or his friends could see that the patient would surely die unless operated upon, then operations could be performed with a much lower mortality and with much better prospects of the patient regaining perfect health.

I shall make no endeavor to make this a classical paper or burden you with long statistical tables, but simply make a brief statement of the conditions as I have met them. For statistics, I will take the report of the surgical department of the Albany Hospital for the year 1908, together with the last 350 consecutive cases of my own.

During the year 1908 there were treated in the surgical department of the Albany Hospital 1,127 cases, with a mortality of 57 cases, or a death rate of about 5 per cent. At first thought, this might seem a rather high mortality rate, but most of the operations performed in the hospital are major operations, the smaller operations being performed outside of a hospital. Again in case

of accidents, only the serious cases are sent to the hospital, the slight cases are treated at home.

This statement is made very evident by the examination of the hospital report. Of the 180 accident cases admitted there were 13 deaths. Several of these deaths resulted directly as result of the accident and cannot possibly be attributed to operation, for none was performed. For instance, three cases of death resulted from burns, three from crushing accidents, one from shock, (cause not stated), five from multiple fractures.

It is of interest to note some of the more common causes of death:

- 180 cases of accident resulted in 13 deaths.
- 112 cases of carcinoma resulted in 22 deaths.
- 8 cases of sarcoma resulted in 2 deaths.
- 73 cases of hernia resulted in 3 deaths (all three were strangulated).
- 87 cases of tuberculosis, (surgical) 2 deaths (both were tuberculosis spine).
- 261 cases of appendicitis resulted in 8 deaths.

In appendicitis, this is surely a much better showing than five years ago, not so much because of the improved technique in operation, although the Fowler position, Ochsner rectal feeding, and the Murphy rectal injection, have been great aid; but more than either of these is the fact that the people in general have learned that appendicitis is a surgical disease and do not fear and delay being operated upon as they did a few years ago. If the public could also learn that tumors of every kind are surgical diseases, and most cases can be permanently cured if operated on sufficiently early, then we would not have had the high death rate in malignant growths, 120 cases with 24 deaths. Doubtless many of the cases that left the hospital had allowed the condition to go so long before entering the hospital that the operation at best could offer only a temporary relief. To me it is peculiar, yet sad fact, that many women through a sense of false modesty, will let a tumor in some part of her body grow for a year or more before telling her friends or family physician and so destroy her only chance of recovery.

One more word while on the subject of malignant growths. Are the patients always the only ones at fault? Did any of the physicians present ever make a statement like this? Mrs. ——— came to me about six months ago for examination of a small tumor in her breast. I have been watching the case and endeavoring to decide whether or not it was cancer. I have come to the decision that it is carcinoma and have referred her to you for operation. The surgeon examines the case and believes it to be carcinoma, but he finds marked glandular involvement. Or, in other words, while the family physician has been studying the case in an honest endeavor to decide whether or not it was malignant, the favorable time for operation has passed. The general practitioners will kindly



consider this as a friendly statement and not think that I am endeavoring to make them think that surgeons never make mistakes, for we do make lots of them. But if we take out a breast thinking it to be carcinoma and the laboratory reports it adenoma, we have not done the patient great harm; but if you delay sending us a patient thinking it adenoma when it was carcinoma, you have done the patient great and lasting injury.

So much is heard about operations nowadays that occasionally patients are anxious to undergo operations. These patients are sometimes (far too often) operated upon even when there is no clear indication for so doing. But instead of being relieved by the operation, they return for a second or third operation till finally they find out that they are not benefited by the operations. They now return to their homes and by their great complaining lead people to the conclusion that operations do but little good anyway. It is much better to close up the incision, admitting a mistaken diagnosis, than to do a needless operation, as a gastroenterostomy or an ovariectomy where there is no good reason for doing the same. In this class of neurasthenic patients the surgeon has the happy alternative of getting rid of them by stating, "I find no condition demanding operation. You had better return to your physician for further treatment."

I will now make a brief review of my last 350 consecutive surgical cases. This is not a large number of cases but for the purpose of this paper, I think it just as instructive as to review a larger number of cases.

I have selected a few of the most frequent kind of cases in the same manner as I did from the hospital report. There were:

- 7 cases tubercular cervical adenitis, no deaths.
- 50 cases appendicitis, no deaths.
- 28 cases hernia, 2 deaths (both strangulated).
- 2 cases peritonitis, cause unknown, 2 deaths.
- 8 cases ovarian cyst, no deaths.
- 11 cases pelvic inflammatory disease, no deaths.
- 7 cases carcinoma, no deaths.
- 3 cases sarcoma, 1 death.
- 31 cases injury of various kinds, no deaths.

I will close by giving a brief history of the cases that died, five in number.

CASE I.—Sarcoma of both ovaries. Mrs. M. S., 32 years old. Family and previous history unimportant. Last menstruation four months ago. About two months ago a surgeon examined her and told her that she had a uterine tumor and advised operation, but as there was some possibility of her being pregnant she decided to wait developments. On the day that I first saw her she was complaining of severe abdominal pain, and said she had not passed urine in twelve

hours. Examination showed a very nervous, weak patient with a large abdomen. Palpation showed the uterus enlarged and believed to contain a fetus. On either side of the uterus was felt a mass thought to be enlarged ovaries. Soon after examination she passed a large amount of urine and reported that she was free from pain. I did not hear from her again for six weeks. She then reported that she had been having a great deal of abdominal pain, and could eat but very little. For the past ten days she had been so weak that she had stayed in bed. Examination at this time revealed the uterus and tumors still larger than at previous examination. After explaining to her that she could not hope to go through her pregnancy, and that she would not live much longer unless something was done, she finally consented to have an operation.

The uterus contained about a six months fetus. Either ovary was about the size of the closed fist. The uterus and ovaries were removed. On examination the ovaries were found to be sarcomatous. She stood the operation well for one in her weakened condition, but as soon as she came out of ether our troubles began. She asked for morphine constantly and when we did not give it to her she would yell. In fact, she informed us that she would keep everyone in the hospital awake if we did not give her the morphine. On the ninth day she succeeded in tearing open the entire incision although same had been closed with layer sutures using chromic cat-gut for the fascia. Even now she kept throwing herself about in bed saying that she did not want to live. After having the greater part of her intestines out of the incision for about five hours she consented to have us put them back and close up the incision. Although the intestines had been out for nearly five hours and she had gotten the dressing off several times, yet the wound healed nicely. She kept on in the same way crying for morphine and refusing to eat till on the twentieth day following the operation she died. Had she shown any desire to do as we wanted her to, I think she would have had a fair chance of recovery.

I have reported this case rather fully, as it shows how a disagreeable patient can greatly lessen her chances of recovery. I might say that she was not crazy as her husband and friend said she had always been of the same stubborn disposition.

CASE II.—Case of peritonitis. Miss T.; colored; 28 years old. No previous history, except that she had a baby two years ago, followed by no complications. Otherwise her menstruation has always been regular. Says she has never had any venereal disease. Present trouble: Five days ago she was taken with abdominal pain and vomiting. She states that the day before entering the hospital the vomitus was dark colored. On admission to hospital her temperature was 99, her pulse was

80, the abdomen was not distended, but there was a slight tenderness all over the abdomen. Vaginal examination was negative. During the first twenty-four hours she was in the hospital the temperature, pulse, and abdomen stayed the same. Her bowels moved freely and she did not vomit. On the morning of the second day she vomited a large amount of dark fluid with a distinct fecal odor. After washing out her stomach she said she felt good and if we would only give her something to eat she would be all right. Her temperature was 99, pulse 90. Abdomen was not distended but there was a slight general tenderness. Operation showed a marked peritonitis; there was about six ounces of pus in the pelvis; the intestines showed many adhesions that were easily broken. Free drainage was introduced and the incision closed as soon as possible. Although she was under ether only twenty minutes she stood the operation badly and died five hours later. No cause was found for the peritonitis as the appendix, tubes, gall-bladder were normal except for the general peritoneal involvement. While no cultures were taken I was suspicious of a gonorrhoeal infection. This case demonstrates that a patient can have a severe peritoneal infection yet have but few symptoms.

CASE III.—Strangulated umbilical hernia. Mrs. W.; age 56; patient weighs 287; has had a large umbilical hernia for about twenty years. This was never reducible yet caused but little trouble until about four months ago. Since then it has been sensitive, so much so that she has remained in bed a greater part of the time. For the past few days it has been very sensitive and she has vomited several times. Examination showed a very large umbilical hernia, the skin over which was inflamed and was very sensitive on pressure. Although we fully appreciate that so fleshy a patient with such a large hernia, an operation was dangerous, yet she said she could not stand the pain and was willing to undergo the operation. At operation we found the sac filled with acutely inflamed omentum and transverse colon. The Mayo operation was performed. She stood the operation well, but the peritonitis became general and the patient died on the third day of general peritonitis. I think the infection spread from the intestine that had been strangulated before operation.

CASE IV.—Strangulated inguinal hernia. Mrs. K., 67 years old; has had a hernia for many years. Never entirely reduced yet has caused but little trouble. Has been constipated for many years. Bowels have not moved for three days, has vomited frequently. To-day the vomitus has been dark colored. Temperature normal, pulse 120 and very weak. A small strangulated inguinal hernia present. Operation done under cocaine as quickly as possible. Patient died three hours later. Had I been working to keep down my mortality rate I would not

have operated on such a bad case, yet I wanted to give her the only chance of recovery.

CASE V.—Mrs. K., 47 years of age. Patient states that for the past four years she has been troubled with her stomach. Has had several attacks of jaundice but has never had severe attacks of pain like gall-stone colics. During these four years her health has been so poor that she has been able to do but little work. Present trouble began six weeks ago, at which time she began to get jaundiced. During these six weeks she has been able to retain but little food. She is so weak that she has stayed in bed for a greater part of the time. Examination shows a very weak, slightly jaundiced patient. She is very sensitive over her stomach and gall-bladder but nothing can be felt except a slightly movable right kidney.

Operation was advised in the belief that she had either a carcinoma or gall-stones. But at operation neither carcinoma or gall-stones were found. The gall-bladder was distended. This was drained. The appendix was very adherent. This was removed. As the patient was very weak nothing was done for the movable kidney. The patient stood the operation badly. For several days following the operation the pulse remained very weak, and she was unable to retain any food by stomach so rectal feeding was kept up. At the end of the week she gradually began to take a little food and was gaining her strength. On the 12th she died suddenly. The cause of her death we were not able to learn as we could not obtain consent for an autopsy.

CASE VI.—M. S.; female, age 9. Patient's history: Has always been in good health till four days ago while eating dinner she was taken with vomiting. She was put to bed but no physician saw her till the next day. At this time she complained of vomiting and pain in her abdomen. Examination showed temperature 104 and pulse 130. The abdomen was distended but not sensitive except slightly so in iliac region. Calomel was given. The next day her pulse was 140 and temperature 105.2, abdomen very distended, has had fecal vomiting, mentally dull, and in every way a very sick child. As the child seemed to be doing so badly, an operation was advised to see if we could determine the cause of fecal vomiting. Just as the ether was started she had a convulsion. On opening the abdomen the peritoneum was found greatly congested and multiple hemorrhages in the mesentery of the small intestine, there was another large one near the base of the appendix and a still greater hematoma retro peritoneal back of the cæcum. The peritoneum was everywhere congested but there was no fluid in the peritoneal cavity. The appendix seemed no more involved than the rest of the intestine. As there seemed to be no way of stopping the hemorrhage we closed up the incision as soon as possible.

This seemed to be a case of peritonitis accompanied with hemorrhages but the cause for same

we were unable to determine, as there was no history of an injury or any previous history of predisposition towards hemorrhages.

From this report it is seen that the mortality rate following operation is low. In the hospital cases there was a mortality rate of about 5 per cent. while in my private work the mortality rate is only about  $1\frac{1}{2}$  per cent. Considering this death rate about the average it would seem that the great fear of the hospital is not justifiable.

### OBSERVATIONS ON ABNORMALITIES OF THE NOSE AND THROAT IN RELATION TO CATARRHAL DEAFNESS AND TINNITUS.\*

By HAROLD HAYS, A.M., M.D.

NEW YORK CITY.

IT has seemed to me that the importance of a subject of this kind should be brought out before a society of general practitioners. For in the multitudinous duties which occupy the attention of the busy physician, as a rule, one is liable to place in the background such a slight complaint as a mild deafness or tinnitus. Or if the subject is thought of at all the patient is sent to an ear specialist and the physician feels that his responsibility is at an end.

Yet, deafness and tinnitus, which is often a concomitant symptom, are a serious menace to the patient from an economical and social point of view as well as being the starting point of a melancholia, hypochondriacal state or actual insanity. I have seen patients, and you also have probably heard of like cases, who because of the buzzing in the ears, associated with a catarrhal deafness, have been driven to the most extreme measures. Recently I heard of a woman suffering from such a condition, whose home life was all that could be wished for, who committed suicide because her "head noises" were unbearable.

If the general practitioner would only pay a little more attention to these cases in their early stages a great deal of distress could be avoided; for it is really in the early stages that a great deal can be accomplished for the relief of these patients. The slightest deafness or tinnitus should warn him that a pathological lesion is beginning in the ear which later on in life will in nine cases out of ten plunge his patient into the depths of untold misery.

Chronic middle ear catarrh may be divided into two stages:

1. Chronic catarrhal otitis media of the simple type. In these cases the drum is retracted, has lost its shiny appearance, is more

or less thickened and opaque, and the short process of the malleus stands out prominently.

2. Chronic catarrhal otitis media with otosclerosis. This process is more advanced. Ankylosis of the ossicular joints has taken place with osteomyelitic changes in the bones themselves. There is a rarefaction of the bones due to absorption of the organic elements and lime deposits form around the blood-vessels. The same picture of the drum is present, but there may be more retraction, and often lime plac may be seen. Valsalva's method and other tests fail to reveal any movement of the drum.

It is not my intention to go into the symptomatology of catarrhal middle ear disease. The two cardinal symptoms are deafness and tinnitus. The relation of the ear to the nose and throat is a very intimate one. Catarrhal conditions of the nasal, oral and pharyngeal cavities directly influence the ears by extension through the Eustachian tubes. It has been definitely proved that every case of suppurative disease in children, for example, is due to some inflammatory lesion or infective process in the nose and throat. G. A. Leland† reports his investigation of 127 cases of scarlet fever. There were 43 cases without adenoids. There were 84 cases with adenoids, and of these it was again surprising that there were 72 without aural complications, either past or present. Of the 12 cases with aural complications, acute or chronic, all had adenoids, and of these only five had them generally distributed and the other seven had them only in the fossæ of Rosenmüller.

In adults almost all cases of middle ear catarrh are due to an abnormal condition of the nose or throat. I have made an extensive study of these cases and desire to submit for your consideration the results that I have come to in a study of some one hundred cases. The catarrhal condition in all these cases was caused by an alteration in the Eustachian tube itself or its adnexa, acting secondarily upon the middle ear.

The abnormalities which I found in the nares of these patients comprised a variety of pathological conditions. The commonest of these were simple congestion, hypertrophy of the inferior and middle turbinates, deviation of the nasal septum, spurs, atrophic rhinitis, sinus disease (particularly suppuration of the ethmoids and sphenoids) and polypi. It was seldom that one abnormality alone was present. More often there was a complexity of lesions, such as the association of hypertrophy of one or more turbinates with a deviated septum or atrophic rhinitis associated with sinus disease, etc.

It is not hard to find the exact part that these

\* Read before the Hunterian Medical Society, December, 16, 1909.

† Nasal and Nasopharyngeal Conditions as Causative Factors in Aural Diseases, by G. A. Leland. *The Laryngoscope*, October, 1909.

pathological conditions play in influencing the Eustachian tube and the ear. In the first place ventilation of the tube is seriously interfered with, and such lack of ventilation eventually leads to an alteration in the mucosa of the tube besides causing a negative pressure in the middle ear. Secondly, any abnormal condition of the mucosa in the nose by extension in continuity will lead to a like pathological process around the Eustachian tube.

In the simple cases medicinal treatment will greatly improve the condition. Catarrhal lesions do not call for operative treatment and a great deal can be done for the ear by relieving the congestion or hypertrophy or atrophy in the nose. The limited time at my disposal will not allow me to go into extensive details as to treatment. More complicated conditions, as a rule, call for operative interference. There are certain cases of hypertrophy of the turbinates that will not respond to astringents or caustics and they must be sawed or cut off. A deviation of the nasal septum cannot be cured by any amount of intra-nasal treatment. The deviation must be corrected by performing a submucous resection. Again, we can relegate to the obscure realm of the past the cauterizing of polypi; they must be snared off, and in nine cases out of ten the underlying condition, such as a diseased sinus, must be treated operatively before a permanent cure can be established.

It is surprising to see the wonderful results that occur after proper intra-nasal treatment. The most gratifying procedure is the submucous resection of the septum. The correction of the deviation will in many instances relieve the pressure upon the turbinates so that a hypertrophic condition of these bodies will reduce itself. The nose becomes free, respiration is easy and ventilation of the tubes is perfect. Without any direct treatment to the tubes or ears the co-existing middle ear catarrh will clear up. One or two examples will suffice.

CASE 1.—Mrs. M., age 60, came under examination eight months ago. She had been suffering from a chronic middle ear catarrh (*aurium sinistra*). Heard watch at contact. Complained of buzzing in ear especially at night. Septum deviated to left. Submucous resection was performed one week later. Hearing improved to six inches. At present no tinnitus.

CASE 2.—J. M., male, age 22, examined one year ago. Chronic catarrhal otitis media (both ears). Tinnitus and marked diminution in hearing. No watch test made. Septum presented a sigmoid deviation. Submucous resection performed a few days later. Hearing improved and no return of the tinnitus.

Sometimes it is necessary to remove a mid-

dle or inferior turbinate together with the septum operation. However, it is best to be conservative in operations in the nasal cavities as the removal of too much of the mucous membrane has a tendency to create an atrophic condition. However, there are certain varieties of hypertrophy of the inferior turbinates which cause no obstruction to nasal breathing, but where the turbinate bone hugs the maxillary wall so closely that the posterior end is more or less in contact with the Eustachian orifice. It is important in these cases to resect the inferior turbinate, particularly the posterior end. A short time ago I saw a young man who presented such a condition on both sides who was suffering from a severe grade of catarrhal deafness. I have resected the left inferior turbinate with marked improvement in hearing on that side. Yesterday I resected the right one, but the result is yet to be determined.

Pathological lesions of the throat which cause middle ear catarrh are mainly confined to the tonsils. There are certain lesions of the mucosa of the pharyngeal wall which extend from the nasopharynx, and adenoids, of which I shall speak later.

An hypertrophied tonsil, whether it is evident in the throat as such or is buried between the pillars of the fauces, causes alterations in the eustachian tube either by recurrences of inflammation or by causing a backward bulging of the posterior pillar of the fauces.

William Mithoefer\* in *The Lancet Clinic*, November 27, 1909, says: "The attachment of a submerged tonsil to the anterior and posterior pillars of the fauces prevents free movement of these muscles, and as these muscles, are intimately connected with the small muscles at the pharyngeal orifice of the Eustachian tube, it can be readily understood that anything preventing proper mechanism of these muscles during the act of swallowing, would cause insufficient aeration of the middle ear, with consequent deafness. It is not only the interference with the action of the palatal muscles, but also the direct pressure on the Eustachian tube by a deeply submerged tonsil, which causes deafness. We may also add that a venous hyperemia around the pharyngeal orifice of the tube, or an infection of the tonsil, either acute or chronic in nature, may cause an exudation or suppurative condition in the ear, with resulting deafness. The remarkable improvement in the hearing of a great many patients after the removal of the submerged tonsil, makes it necessary for us, in the treatment of middle ear disease, to examine the tonsillar region carefully, and advise the re-

\* The Submerged Tonsil, by William Mithoefer. *The Lancet Clinic*, November 27, 1909.

removal of the tonsils if there seems to be any interference in the action of the palatal muscles."

The pathological conditions in the nasopharynx are of great importance. Here again, the alterations in the mucosa extend by continuity into the mouths of the eustachian tubes. One of the commonest conditions found, is adenoid vegetations which may occupy the entire nasopharynx, or may be present only in the fossæ of Rosenmüller, overhang the Eustachian eminence and block up the tubal orifices. The situation of the adenoid is of as much importance as its size. Since the advent of the pharyngoscope I have had little difficulty in being able to ascertain the limits of adenoid masses, particularly in adults.\*

The limits of adenoids vary. In children and in many adults the growth is limited anteriorly by the septum over which it hangs to a varying degree, sometimes giving complete occlusion to the nares, at other times occluding all but the inferior meatus. Posteriorly there are no definable limits, but in no instance have I seen an adenoid extend lower posteriorly than anteriorly. In other words, the greatest hypertrophy is in front and the growth merges with the pharyngeal wall posteriorly. The external limits of the adenoid are proportionate to the width of the nasopharynx and almost always some of the tissue extends into the fossæ of Rosenmüller and overhangs the Eustachian tubes. The soft consistency of the adenoid; its location and its glandular structure, predispose it to constant irritation. The result is that even where hypertrophy does not take place, congestion and infiltration of the glandular tissue will allow it to increase in size to such an extent that there are intermittent periods of complete and partial nasal obstruction. A large adenoid growth need not obstruct all the time, but is sure to obstruct some of the time.†

Aside from the extension of the inflammation of the adenoid to the Eustachian tube and adjacent parts, the centrally seated adenoid is not liable to cause middle ear catarrh except by its interference with ventilation of the nasopharynx. The portion of a central adenoid or small individual adenoids in the fossæ of Rosenmüller invariably tend to cause such a condition. If the lateral adenoid is of sufficient size to overhang the Eustachian prominence and obstruct the tubal orifice the result is self-evident. However, those adenoids which do not cause obstruction in this way, are often of vast importance; for the small

adenoid deeply situated behind the eustachian tube, causes a peritubal hyperemia and inflammation or hypertrophy which in nine cases out of ten results in the formation of bands or adhesions in the fossæ of Rosenmüller.

Adhesions in the fossæ of Rosenmüller are a very important matter in connection with chronic catarrhal otitis media. With the pharyngoscope the fine superficial fibrillæ of connective tissue can be seen extending across the fossa or extending from the fossa downward on to the posterior pharyngeal wall. The fossa in many cases is a very deep recess, sometimes extending outward behind the promontory to a depth of one to two centimeters. Although the deeper fibrillæ cannot be seen, they are easily appreciated by the examining finger.

It has been my custom in all cases of chronic catarrhal deafness or tinnitus, to insert my finger in Rosenmüller's fossæ, even where superficial adhesions have not been evident by pharyngoscopic examinations. In no instance where such an examination has been made have I failed to find adhesions and the comparison of the two fossæ, in catarrhal cases where the symptoms are on one side only, has shown plainly that such adhesions influenced, to some extent at least, the pathological process; for on the side not complained of, there were either no adhesions at all or they were so frail as not to influence the eustachian tube.

Dr. Francis R. Packard in a paper published in the August issue of *The Laryngoscope*,‡ cites the case of a young woman with increasing deafness who obtained absolutely no relief from her condition until a number of fibrous bands were discovered in the fossæ of Rosenmüller and broken down by the finger. From that time her hearing showed progressive improvement. Further, he says, "I have had the opportunity of studying a number of cases in which ear troubles undoubtedly originated from the existence of adhesions in the fossæ of Rosenmüller and the nasopharynx the breaking up of which resulted in a gratifying improvement in the aural condition. These cases presented almost identical histories, namely, prolonged Eustachian and middle ear trouble, with increasing deafness, without relief from the usual methods of treatment by Politzerization, massage, hot air, etc. Several of these cases had had adenoids in childhood." I can substantiate these remarks by the cases that I have seen myself, where such remarkable improvement had taken place after the breaking down of these adhesions and keeping the fossa clean, that one could hardly believe that such a simple procedure could bring about such an astonishing result.

\* The Pharyngoscope: A New Method of Examination of the Nasopharynx and Larynx, by Harold Hays. *New York State Medical Journal*, August 21, 1909.

† The Diagnosis of Adenoids in Children and in Adults, by Harold Hays. *Journal of Ophthalmology and Oto-Laryngology*, August, 1909.

‡ The Importance of the Thorough Study of the Nasopharynx in Treatment of Diseases of the Ear, by Francis R. Packard. *The Laryngoscope*, August, 1909.

I have not wished to enter too extensively into technical details. These few remarks may serve to impress upon you the vast importance of a thorough examination of the nose and throat in every case of catarrhal deafness or tinnitus.

11 West 91st Street.

## STRETCHING THE SCIATIC NERVE.

By EDWARD MILTON FOOTE, M.D.

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THE operation of stretching the sciatic nerve has been pretty generally given up because it has a considerable operative risk, and also because its results are usually temporary. If, however, it can be made a very simple procedure, its performance will be indicated, even though the relief obtained, lasts only a few months. As described in most surgical textbooks, the operation consists in exposing the nerve in the upper or mid-thigh, by a 3 or 4-inch longitudinal incision, and stretching it with the fingers, sufficient force being used to lift the leg from the table. While death has not followed this operation as far as known, there have been reported several cases in which the nerve was ruptured, or, in which permanent paralysis resulted, from ill-judged excessive force. It is, therefore, desirable to employ a simple and exact technic.

The sciatic lies very close to the surface of the body, just below the gluteal fold. If one stands erect, and flexes the thigh without flexing the leg, he can feel the sciatic easily in this situation. This is the best point for exposure of the nerve. It can be found readily, lower down the thigh, but the higher it is stretched the better, since pain sometimes continues after stretching, down to the point of exposure, though entirely relieved below that point.

Instead of the usual longitudinal incision, I recommend a transverse incision made at the lower edge of the gluteus maximus muscle, (Fig. 1), and only two inches in length. Division of the deep fascia—which is here very thin—exposes the transverse lower edge of the gluteus, and the longitudinal outer edge of the biceps muscle. In the angle made by them, the sciatic is readily exposed by a little blunt dissection, and brought into view on the finger. The nerve should be stretched by repeated steady pulls upon it, until it is plainly elongated. The force exerted, should never exceed fifty pounds. An easy way to estimate this is for the surgeon to stand on a small platform scales, while making the traction on the nerve. In the case reported the pull was estimated to be between forty and fifty pounds, by tests subsequently made on scales. As the stretching was followed for some days by partial loss of sensation and slight loss of motion in some muscles, it was certainly

severe enough. The history of this patient is as follows:

Mr. F. B., aged, was referred to me by Dr. R. L. Reid. He had had increasing symptoms of sciatica for over a year, and for several weeks the pain had been so severe that he had had almost no sleep. He entered the Polyclinic Hospital, March 18, 1909, and was operated upon by me the following day. Under ether a transverse incision was made in the manner above described, and the nerve was stretched with the two fingers, until it was distinctly elongated. The loop which was pulled out, slowly retracted into the wound when released. The wound was almost bloodless, so that not a single vessel was ligated. The skin was approximated by a subcuticular silkworm gut suture. (Fig. 1). The wound healed primarily.



FIG. 1.—Transverse incision for stretching the sciatic nerve. Photograph taken 10 days after operation, shows the subcuticular stitch still in place. The arrows point to the ends of the incision; the line extending beyond is the silkworm stitch.

The night after operation the patient had the best sleep he had had in months. Four hours after the operation the patient told me that he had no pain to speak of. This freedom from any of the severe pain to which he had grown accustomed, was not only immediate but continuous. I saw him repeatedly in the succeeding days and the report was always the same in this respect. On the day after operation I tested the sensory and motor condition of the limb. He said that numbness existed from a little above the knee downward. This was nowhere a complete loss of sensation. He could recognize quickly when and where the leg was touched. The various motions of the leg and foot could

be performed with the exception of dorsal flexion of the foot and toes (extension). The extensor longus digitorum seemed to be most involved in this paralysis; to a less degree the anterior tibial. Within three days paralysis was distinctly less, and in three weeks both the motor and the sensory paralysis had about disappeared. By this time some of his former symptoms had begun to recur. He complained especially of pain above the point of stretching, namely in the hip.

This was not nearly so severe as before operation. At that time, after two or three hours sleep he would suffer so that he had to be up and down all night. Now on the contrary he is able to go to sleep after having his hip rubbed, and sleep five or six hours before awaking; and a part of the following three or four hours. So that it seems as if the man had already been more than repaid for the annoyance of the operation, the technic of which is commended to those who have occasion to expose the sciatic nerve.

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## LARYNGEAL TUBERCULOSIS.\*

By ALEXANDER A. LA VIGNE, M. D.  
SARANAC LAKE, N. Y.

LARYNGEAL tuberculosis may be classed in two divisions—primary or idiopathic and secondary or co-pulmonary. Under the primary cases may be understood first, those which, whether stationary or cured, show no pulmonary involvement and second, those, which on post-mortem show no signs of a past or present tubercular condition of the lungs. Secondary cases of laryngeal tuberculosis are those due to a pre-existing pulmonary lesion.

Although a great deal has been written and said, both for and against the probability of tubercular disease of the larynx existing as a primary lesion, it is substantiated by numerous reports of careful observers that primary laryngeal tuberculosis is possible and does occur.

The earliest reports of primary laryngeal tuberculosis date back to 1883, when J. Solis Cohen, Mackenzie and Angelot, reported several cases, but none of those were verified by post-mortem or subsequent history. In 1886 Frankel reported in the *Deutsche Medicinische Vochenschrift* a case of a man of thirty-five years of age, in whose sputum numerous tubercle bacilli were present, where a diagnosis of primary laryngeal tuberculosis had been made and where on post-mortem were found extensive and deep ulcerations in the arytenoids and vocal chords, with

absolutely normal lungs. Cardier in 1894 reported 100 cases where laryngeal tuberculosis was diagnosed primarily to disease of the lungs. Since then a number of cases have been reported by Pluder, Bonfiglio, Clark, Gugenheim, Tisier, Aronson, Anroy and others.

But, even a few years ago, the methods of diagnosis of pulmonary tuberculosis were in comparison crude and incomplete and many undoubted cases of tuberculosis of the lungs escaped detection—and again, in but a few of the cases above cited post-mortem examinations were made—therefore, they cannot all be classed as primary.

There can be no doubt, however, that if primary, there must have been in the larynx a congestive or ex-foliative catarrhal condition with some loss of epithelium as a predisposing cause and as a ready soil for the entrance of the tubercular bacilli—for we believe with Virchow, that tubercularization of the larynx precedes laryngeal phthisis.

While infection of the larynx through disease of the cervical glands is possible, cases of laryngeal tuberculosis, which come under our most frequent observation are all secondary and due to a pre- or co-existing pulmonary tuberculosis. Heinze cites 1,226 cases who died of pulmonary tuberculosis, of which 51.3 per cent. had laryngeal tuberculosis. This percentage would seem entirely too large and is probably derived from the fact that we find a greater susceptibility to infection in the far advanced and moribund cases of pulmonary tuberculosis. A fair estimate would be about 12 per cent.

Careful observation has proved that almost every case of co-pulmonary laryngeal tuberculosis is preceded by a catarrhal tracheitis, and that there is a tubercular sub-tracheitis more frequently present than is suspected. This tracheitis is responsible for many distressing symptoms, which are commonly attributed to the larynx. The mode of treatment of the disease frequently depends upon the diagnosis of this condition, which can be easily detected by palpation and auscultation.

The disease probably reaches the larynx through a break or loss of epithelium, the blood and the lymph channels. Men are more frequently affected—probably because of greater opportunity for exposure, use and abuse of the voice, use of tobacco, alcohol, etc. The proportion is about three to two.

The premonitory and subjective symptoms are not sudden and are so insidious as to extend over a period of weeks and months without any alarm being taken. These symptoms are frequently attributed to "taking cold" and no advice is sought until decided hoarseness or pain appears.

A great many cases are seen, who have but slight apex involvement, but who become alarmed

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\* Read before the Medical Society of the County of Franklin, at Malone, January 12, 1909.

at a persistent fatigue of the voice, amounting to severe hoarseness and almost complete loss of the voice. Then I frequently find what might be named as pseudo-tuberculoid (in contradistinction to true tubercular) disease of the larynx. The irritation in the larynx, the fatigue and the desire to clear the throat constantly are then due to an old catarrh of the larynx, with a slight congestion of the arytenoids, and to the lodgement of strands of mucus horizontally across the vocal cords ("frog in the throat"). The weakness of the voice, hoarseness and aphonia are due then to a laxity of the vocal cords, sometimes amounting to a paresis and to enfeebled muscles in the chest wall,—whether from actual physical weakness or apprehension in making the effort to use the chest muscles (especially in cases of hæmoptysis, when the dread of a hæmorrhage sometimes amounts to a mania). When no temperature is present, these cases always get well under the ordinary regime of rest, air and diet—when their nutrition improves and they begin to gain strength and confidence in themselves.

The early symptoms of true laryngeal tuberculosis are really those of catarrhal laryngitis—there may be at first some slight change in the timbre and quality of the voice, or a persistent hoarseness or dysphonia (going on to complete aphonia in the latter stages), there may be pain in the throat or persistent coughing and pain on swallowing, the more severe the more the epiglottis or the pharynx are affected.

There may or may not be an elevation of temperature. Dyspnœa is frequently a marked symptom, especially if the tumefaction is great or tuberculomata are present or perichondric abscess exists. The symptoms of laryngeal tuberculosis generally increase with the development of pulmonary tuberculosis.

The laryngoscopic picture of an established laryngeal tuberculosis cannot be mistaken, although the early appearance of the larynx is that of a catarrhal inflammation—a stage of the disease we are rarely given the opportunity to observe, for the patient comes to us only when he has entered upon the pathognomic stage of tubercular laryngitis. Then, in chronic cases, there is a marked anemia, in acute—a hyperemia, followed after a lapse of time by infiltration and tumefaction. Localized swellings may then appear of such size as to completely obstruct the interior of the larynx and cause severe dyspnœa. The infiltrations most frequently begin in the intra-arytenoid space—probably on account of the abundance of loose cellular tissue and the ease of retention of sputum. Next in frequency come

the ary-epiglottic bands, then the epiglottis itself. The vocal cords are the most resistant to disease, probably because of their squamous epithelium covering, although a paresis of one or the other chord is frequently seen. Then come the small reddish yellow spots, the breaking down of tissue, superficial ulceration—shallow, worm-eaten edges, painful, extending laterally and not deeply (as in the lues).

Later come the necrosis and loss of tissue of the deep ulcerative stage, where whole parts of the larynx are eaten away and thrown off in expectoration. In cases frequently observed more than two-thirds of the epiglottis have sloughed away and only small pieces of it remain attached to the ary-epiglottic band.

The diagnosis of laryngeal tuberculosis should be made with care for it is not always an easy matter, even when a pulmonary condition does exist. There are many people afflicted with pulmonary tuberculosis, who for years had been sufferers from some form of non-specific laryngitis and upon examination we may find enlarged arytenoids, congested vocal chords or thickened intra-arytenoid spaces. Such conditions have been observed in a number of cases of singers, clergymen and public speakers, who developed no laryngeal tuberculosis after their lung lesions had become healed.

I will not dwell long, however, upon the subject of diagnosis. The usually accompanying pulmonary lesion, the tubercle bacilli in the sputum, scrapings or debris, the cachexia, the "club-shaped" arytenoids, the "turban" epiglottis, Cybulsky's sign of laryngeal crepitation, the characteristic ulceration and, in doubtful cases, the use for diagnostic purpose of tuberculin as suggested by Dr. Trudeau in 1901 in afebrile cases, where no tubercle bacilli are found in the sputum.

The prognosis is more hopeful than is generally supposed and depends in no small degree upon the co-operation of the laryngologist with the physician in charge of the case. Just as the failure to diagnose early a pulmonary tuberculosis minimizes the chances of recovery, so the non-recognition by the general practitioner of the early and frequently curable pathologic conditions of the larynx is responsible for a great many hopeless cases seen. It is not meant, of course, here to imply that all cases seen early by the specialist would do well, for it is well known that some pulmonary as well as laryngeal cases of the unresisting type will go down rapidly no matter what care is given their lungs or throat. The fulminating type is rapidly fatal, while the chronic may go on for years. Spontaneous cures are more frequent than is suspected, as has been observed by Krause, Heryng, Rosenberg and others. A case may be called a cure when after the expiration of two years no recurrence of the trouble is observed.



The prognosis is bad, first, when the pulmonary condition grows steadily worse, nutrition poor, when there is a hyperpyrexia and progressive loss of weight; second, when the epiglottis, the ary-epiglottic bands or the posterior aspect of the pharynx are the seat of deep and extensive ulceration causing excruciating pain on deglutition, and third, when there is enormous swelling of laryngeal structures, resisting all treatment and causing dyspnoea and suffocation.

The prognosis is good, first, when there is improvement of pulmonary condition, no temperature, good nutrition and no loss of weight; second, when the infiltration or ulceration are not extensive and are confined, in order named, to the vocal chords or ventricular bands or arytenoids and, third, when the disease is recognized early.

Frequent and skillful local treatment, energetic surgical measures, when indicated and without waiting for emergencies, are absolutely necessary to control the existing conditions and to prevent the spread of the disease. Climate alone, hygiene and nutrition will rarely cure a tubercular ulceration—but all these with careful treatment of the throat will do so in many instances. All cases of pulmonary tuberculosis should use some prophylactic measures for the cleansing and maintaining in a healthy condition the vocal box, through which such great quantities of infective material pass during the day. Alkaline and mildly antiseptic gargles and sprays should be prescribed as a routine, particularly in all cases where tubercular bacilli appear in the sputum. These patients if attacked with a laryngitis, even non-tubercular, should be closely watched, as this is frequently but a stepping stone to tubercular laryngitis.

A cold, dry climate of moderate altitude is found to be the best for a tubercular larynx—although some cases do better in warm and moist climate. Whatever the climate, pure air and sunshine, outdoor life, good food and regular habits are paramount. Absolute rest of the larynx cannot be emphasized too strongly. Total silence should be enforced early, no matter what hardship it seems to the patient—not even a whisper should be allowed. He may be given a pad of paper to write his wants, for it is bad enough that he has to disturb the physiological rest of his larynx in breathing, coughing and deglutition.

The cough should be controlled by all means, both by drugs (heroin, codeine, etc.) and topical treatment. As a local measure of great effectiveness nothing has given me more gratifying results than the use of intra-tracheal injections of a sterile 1 per cent. solution of menthol and guaiacol in olive oil, with the addition of cocain or morphine or anesthesine, if a prompt analgesic effect is desired. This beneficial effect is probably due to the sub-tracheitis frequently existing, as well as the local action upon the larynx. A 4 per cent.

solution of cocain in 1 to 10,000 adrenalin chl. sprayed upon the fauces, will prevent gagging or choking. Freedom from mucus, pus and debris, should be maintained by frequent cleansing under low air pressure with a 40 per cent. solution of peroxide of hydrogen followed by an alkaline spray.

In the stages of hyperemia and infiltration, total rest of the voice and, as local measures, a spray of a 4 per cent. solution of cocain in adrenalin followed by a thorough application of a 40 grains to the ounce of nitrate of silver solution or a 20 per cent. solution of lactic acid or a  $\frac{1}{2}$  per cent. to 3 per cent. of a formalin solution. In milder cases applications of 20 per cent. solution of glycerite of tannin and astringent gargles are frequently effective. Inhalations of various volatile oils are of doubtful therapeutic value, but sometimes give relief.

In cases of enormous tumefaction of the larynx so frequently seen in the later stages of this disease, when there is great œdema of the arytenoids or the epiglottis all ordinary remedial measures for the relief of dyspnoea are of little avail and surgical measures are then imperative. Under cocain and adrenalin anæsthesia two or three incisions are made with a Heryng knife in the tumefied tissues and bleeding encouraged by gargling with hot water. In a few minutes the bleeding stops spontaneously and cold compresses around the throat are ordered. Mild antiseptic and alkaline cleansing sprays are recommended and no signs of the incisions are visible in about two days. The relief obtained from this procedure is very prompt and effective. Scarification, usually advised, should be avoided, so as to injure as little of the mucous membrane as possible and thereby lessen the danger of infection.

When the infiltrated tissue breaks down and ulceration appears, topical applications become necessary. Whatever remedial agent is used, it should always be applied firmly to the spot in question only, with no swabbing, so as not to touch and injure the surrounding mucous membrane and cause new focus for infection. The ulcerated spots should be cleansed as suggested and a 10 to 12 per cent. solution of cocain is applied. The ulceration is carefully scraped by a curette or, as I frequently use it, with a small piece of a sterile rough sponge in a Cohen's laryngeal forceps; then the various cauterant agents are applied. Lactic acid has been used since 1886, when Krause, of Berlin, first suggested it, and with excellent results, in strength varying from 15 to 80 per cent., according to necessity. There should be no pain, if the larynx is thoroughly cocainized, no hemorrhage, if adrenalin is used with the cocain. Only two or three spots should be treated at a sitting and no harm can be done in using the stronger solution of acid, if it is not allowed to spread over the surrounding

mucous membranes. Formaldehyde or formalin (which contains about 40 per cent. of the former), is frequently effective, when lactic acid fails. Formalin in graduated solutions of from  $\frac{1}{2}$  to 10 per cent., has given me the best results. These applications are usually followed with insufflation of iodoform or orthoform powder to cover the treated spots. The treatment is concluded with an intra-tracheal injection of the mentioned above formula.

The stage of necrosis and loss of tissue calls for the use of the curette—as suggested by Heryng, of Warsaw—to limit the tubercular infiltration and attempt to convert the tubercular ulcer into a benign one. This is followed by thorough application of lactic acid or formalin with iodoform or orthoform powder. Curettage and other surgical measures are not to be attempted in cases of disseminated disease of the larynx, in cases of advanced disease of the lungs, febrile, weak and nervous, who would but illy resist a surgical operation on any other part of their body.

The administration of tuberculin has been found of value in cases where a marked improvement of the pulmonary condition was observed. Tracheotomy is of value in emergency to prevent suffocation, and in some cases has been responsible for prolongation of life for months.

We have not been successful in the treatment of laryngeal tuberculosis with the deep intramuscular injections of succinamide of mercury, as suggested by Dr. Barton Wright, of Las Animas, Colorado, although out of three cases of a mixed tubercular and leucic infection under our care, two were cured and one improved.

Whatever the treatment used, we should by all means, not allow the patient to suffer the agonizing pain and discomfort which characterizes the last stages of this disease. Sprays of cocain and morphine hypodermatically should be used to give relief and freedom from pain. No scruples should be entertained about giving these drugs in the latest stages of this disease as the patient rarely lives long enough to become addicted to their use.

Now a few words as to the diet. Alcohol and tobacco are absolutely forbidden. As deglutition becomes painful, a spray of from 2 to 6 per cent. of cocain should precede each meal. The diet should be nutritious, but not irritating to the pharynx or larynx, no solids should be attempted, cold dishes are better than hot, raw eggs, cream (better than milk), oysters, thin custards, jellies, thick soups and ices. Wolfenden's posture with the patient's head face down over the edge of the bed and drawing food through a tube from a glass standing on the floor, is sometimes very grateful, as the food then passes along the pyriform sinuses without touching the upper part of the larynx.

## SUPPURATIVE APPENDICITIS WITH COMPLETE SLOUGHING OF APPENDIX AND FECAL DISCHARGE THROUGH WOUND FOR TEN WEEKS.\*

By G. F. BLAUVELT, M.D.

NYACK, N. Y.

**G.** W., adult, seen in consultation June 19, 1909, had been in bed one week with pain in right side about McBurney's point. Chilly feelings; temperature varying 99 to 101; frequent nausea. Had several slight attacks before. Mass felt in right iliac region, quite painful on pressure, also much tenderness in right lumbar region. Operation was advised and patient sent to the hospital next morning and operation performed at 8.30 A. M., Drs. Leitner and Kline assisting, Dr. Maynard anæsthetist. Incision through right rectus opening a large abscess cavity containing nearly a pint of stinking pus. In the bottom of this cavity the appendix was found completely sloughed away, only peritoneal coat remaining holding three large fecoliths. The abscess cavity extended upward to lower pole of right kidney. The rotten appendix was picked out of the wound, the cavity cleaned and a large drainage tube put into the bottom of the cavity and the wound partly closed. The intestinal contents discharged freely and entirely through the incision for several weeks, when some fecal matter passed per rectum. After the fifth week the discharge through incision began to decrease and for two or three days at a time there would be very little fecal matter passed through the wound. During the whole time the patient was under treatment he had at intervals of seven days a chill with nausea and headache and followed by fever for two days. These attacks were followed by a free discharge of pus and fecal matter. These attacks were considered to be the result of suppuration in the infected area. At the tenth week the wound seemed entirely closed and we hoped it would remain healed, but a sharp chill came on with pain in right side just below the kidney. There was nausea with fever for two days when a sudden deluge of pus and fecal matter came from the wound. After this all symptoms subsided, the wound healed rapidly and has remained healed, and patient feels very well.

This case is reported to illustrate the fact that very large lesions in the intestine following appendicitis abscess, will heal without secondary operation if nature is given a chance.

\* Read at the annual meeting of the County of Rockland Medical Society held at New City, N. Y., December 1, 1909.

**GUNSHOT WOUND OF ABDOMEN WITH FOUR PERFORATIONS OF JEJUNUM AND VERY SEVERE HEMORRHAGE FROM SEVERED MESENTERIC VEIN.**

Boy, 14 years old, came to my office November 1, 1908, about 2 P. M., having driven six miles in an open cart. His father, who came with him, told me that during the morning the boy was handling an old 32 pistol which was accidentally discharged with the muzzle pointed directly at his abdomen and only a few inches away. The boy was very pale, pulse 70, of fair strength. He did not complain of pain, could stand erect and walk steadily. Said he did not feel badly. On examining the abdomen a bullet wound was seen over center of left rectus, just above navel. Slight burn on edge of wound. The bullet was felt in left lumbar region under the skin about two inches from spine. Abdomen was not tender on pressure but muscles somewhat tense. The boy was sent to the hospital for immediate operation. At 5 P. M. he was seen at the hospital by Drs. Kline and Leitner, who also advised operation, Dr. Waldo, of New York, who was present concurring. At this time the pulse was 70, temperature 99, was not suffering any pain and did not seem to be in much shock, but had an ashy, anxious face. Incision through the wound in left rectus into peritoneal cavity, large amount of blood found, jejunum brought into incision and found to have two loops completely perforated, making four large openings with mucus membrane protruding. While bringing the gut into view a very profuse hemorrhage occurred which could not be found for a few seconds and the patient lost a very large quantity of blood. A large mesenteric vein was found divided by the bullet, this was clamped and the hemorrhage controlled. Subcutaneous saline injection was at once given freely, and the perforations in gut closed by Lembert sutures. No attempt was made to clean the blood from abdomen, but hot saline solution was poured in and the incision closed without drainage. The bullet was removed through a small cut in skin over left quadratus, having passed directly through that muscle. Patient's condition when put to bed fair. Pulse rapid and weak. He rallied well, however, and was bright and comfortable next morning, and improved rapidly. There was a slight suppuration in the track of the bullet wound. At about the end of third week he had a sharp rise in temperature for a few days, with marked tenderness on left side of abdomen. He had been much constipated for several days and a thorough evacuation of the bowels relieved these symptoms and the boy made a rapid complete recovery.

This case is reported to emphasize the necessity of operation when it is fairly certain

that a gunshot wound has penetrated the abdomen even if the symptoms are negative. Also to urge the early operation not waiting for symptoms to develop.

**STUTTERING.\***

By E. W. SCRIPTURE, Ph.D. (Leipzig), M.D.  
(Munich.)

**S**TUTTERING" and "stammering" are terms applied to a disease whose most striking symptoms consists in cramps or excessive tension of the organs connected with speech. These cramps may show themselves in spasmodic contractions of the lips, as in the case of the captain who gave the order, "Ready, Aim, F-f-f-f-f-shoot, confound you." They may show themselves also in the cramps of the breathing muscles, as in the case of one of my friends, who in the middle of a sentence would suddenly become speechless with a cramp of the abdominal muscles; we were obliged to sit in silence for a minute at a time; he could not speak on account of his cramp and I could not on account of politeness.

Stuttering is essentially a mental trouble—a psychoneurosis—arising from a compulsive idea.

Dr. Johnson was compelled to touch every post that he met in his walks. Some children are compelled always to step off with a certain foot. Stutterers are compelled by the thought of speaking to tighten up all their muscles of speech so that they move stiffly or get into cramps.

Stutterers have no difficulty in singing, because they have no compulsive idea connected with the thought of singing. Most of them can speak perfectly in a dialect for a similar reason.

The cure of stutterers has to proceed on the principal of training them to speak in some new way. Since this new way is free from the compulsive idea, they do not stutter while they are using it. The simplest new way is merely to sing what you want to say: as long as you sing you will not stutter. This is, however, an impracticable procedure, for the stutterer wants to speak, not sing.

Other new ways are: to drawl the vowels, to speak while beating time, to speak in a hollow voice, to speak very slowly, etc., etc. These are the methods of the "stammer schools." They are effective in that, for a short time the patient can manage to speak in an odd way with more or less success. When the result is permanent, it usually leaves the patient with some vocal oddity. The cure is rarely permanent, however, because the patient naturally tries consciously or unconsciously to get rid of his oddity, that is, of the very thing that is curing him.

There is, in my opinion, only one form of cure that is scientific; it consists in teaching the

\* Read before the Society of Alumni of Bellevue Hospital.

patient to speak in perfectly normal voice. To the stutterer this is a "new voice," just as odd to him as singing or any queer way of speaking. The moment he speaks in a normal voice he ceases to stutter because he is freed from his compulsive idea.

The most constant abnormality in the stutterer's speech is a stiff laryngeal action. This produces a monotonous hoarse speech. The laryngeal stiffness may be broken up by the "melody cure." The stutterer is taught to speak so that his voice constantly rises and falls through an octave. At first he does it awkwardly and he will probably object to using this queer method of talking. His attention is called to the fact that I have been running over an octave all the time while talking to him, and that my voice is a perfectly normal one. As he becomes more expert, he runs up and down the octave just as I do and acquires a normal voice.

The reason why the melody cure is so effective is that in running over the octave the person passes from the set of muscular adjustments required for the chest register to an entirely different set required for the head register. This breaks up his laryngeal cramp and with the laryngeal cramp the other cramps are lost also. This principal of stopping stuttering by constantly breaking up the cramp is an entirely new one. I have been using the melody cure for a long time but it is only lately that I found the reason for its effectiveness—namely, that it involves the change in the system of muscular adjustments.

## HISTORY OF A CASE OF GAS POISONING.

By R. W. VAN DYKE, M.D.,  
MALONE, N. Y.

THE following is a case of gaseous poisoning, which came under my observation, and on account of its unusual course and termination, I have written up a brief history of the symptoms presented.

### *History of Injury.*

J. P. Male. Age, 38 years. Occupation, laborer. At the time of the accident was drilling and blasting out an old well. After a small explosion he sent a helper down to remove the debris which had collected as a result of the explosion, and the man came back to the surface complaining of inability in breathing, and the patient said he would go down. After descending nearly to the bottom of the well, a distance of about twelve feet, he was overcome and fell unconscious, where he remained some fifteen or twenty minutes before help could be summoned and the apparently lifeless body drawn to the surface of the ground.

### *Symptoms.*

When I arrived at the place, about three-quarters of an hour afterward, I found the pa-

tient in a state of clonic convulsions, with all the extremities drawn to the right, the head retracted, and jaws rigid during the contractions. The eyes were wide open, pupils fully dilated but equal. Respirations shallow, about ten per minute and of Cheyne-Stokes type. Pulse very feeble, about 160 per minute, radial pulse entirely obliterated. During each spasm he would assume a position somewhat resembling opisthotonos excepting the greater part of his weight was thrown on his shoulders and heels rather than the head, the head being drawn around on the right shoulder.

The entire body was covered with cold perspiration. I gave him a hypodermic of  $\frac{1}{4}$  gr. morphia with 1-150 atropine and after about thirty minutes the spasms began to gradually lessen in force and frequency until they finally subsided entirely, leaving the patient in a state of extreme collapse, but breathing some better and pulse slightly stronger, about 130 per minute. Two hours afterward he began to be slightly nauseated, but was unable to vomit on account of weakness. This condition remained unchanged for nearly twenty-four hours, and still unconscious.

About this time he began to regain consciousness enough so they were able to get him to take a few swallows of water without being nauseated, and his condition in many respects resembled recovery from a prolonged etherization.

From this time on for the next twenty-four hours there was a marked improvement and the morning of the third day he was brought home, a distance of three miles, although in a very weak and dazed condition, suffering from extreme headache, he made some improvement until the seventh day, when without the least sign of a change in his physical condition, he was suddenly precipitated into a state of complete imbecility, total loss of mind, reflexes absent, negative to all that was done for him, refused food, water or medicine, incontinence of urine and feces, and in a short time developed all sorts of incoherent movements. Aphasia was present and his tongue was continually moving about in the mouth or partly protruding, and we were unable by any moderate amount of hypnotics to produce sleep. In spite of all that could be done for him he remained in this state for six days more, or the thirteenth day of his illness, taking neither food, water or medicine by mouth, and on being forced to do so would eject it with terrific force; in fact, he had the habit of expectorating promiscuously about the room or in one's face if they came near him.

During this time, a consultation was held with the idea of trying to arrive at a prognosis or treatment and the result was on the whole not very satisfactory, as about all that could be done was to open all the available channels of elimination. It was suggested that a commission in lunacy be appointed with the idea that if he was committed to an institution he would have the

proper care, which was lacking in his home. This was done, but by the time the papers were ready and examination made, a slight improvement was noticeable. He was induced to take some bouillon and crackers; a peculiar thing was that he would take highly seasoned liquids with quite a degree of tolerance, while plain water was very repulsive to him. On account of this improvement, the examination was held over. Within the next two days he had sufficiently recovered so that he could carry on an intelligent conversation, and I was able, in my interrogations, to carry him back to the day of his injury, and he even went so far as to give me the information that the gas had the odor of sulphur, but following the injury there was a complete blank of seventeen days.

I held him under observation for a week longer, at which time he was able to be about, had a good appetite and had regained flesh and strength at a remarkable rate, his mind to all appearances was perfectly normal as regards the form of gas by which he became poisoned; we can only presume that it was hydrogen sulphid, as his symptoms would lead to suspect, and the presence of odor of sulphur in the well. On the other hand, the combustion of dynamite might have opened up a seam in the rock through which some of the natural gases may have escaped into the well.

Whatever the causes may have been, the results were most interesting.

## MEDICAL SOCIETY OF THE STATE OF NEW YORK.

### ANNUAL MEETINGS OF THE DISTRICT BRANCHES.

First District Branch—Thursday, October 27th, in Newburgh.

Second District Branch—

Third District Branch—Tuesday, October 4th, in Albany.

Fourth District Branch—Tuesday, September 27th, in Schenectady.

Fifth District Branch—Wednesday, October 19th, in Syracuse.

Sixth District Branch—Tuesday, September 27th, in Cortland.

Seventh District Branch—Thursday, September 15th, in Geneva.

Eighth District Branch—Tuesday and Wednesday, September 27th and 28th, in Buffalo.

### FOURTH DISTRICT BRANCH.

ANNUAL MEETING, AT SCHENECTADY, N. Y., TUESDAY, SEPTEMBER 27, 1910.

#### SCIENTIFIC PROGRAM.

##### Morning Session.

1. President's Address. . . . . D. L. Kathan, Schenectady
2. "Report of a Case of Suppurative Mastoiditis with Involvement of the Lateral Sinus,"  
F. S. Fielding, Glens Falls
3. "Fibroid Uterus Didelphys,"  
J. B. Connant, Amsterdam
4. "The Mineral Waters of Saratoga Springs in the Role of Therapeutic Agents."  
G. B. Fish, Saratoga Springs

5. "A Brief Résumé of the Physiological Action of the Various Heart Tonics, Their Uses and Indications" . . . . . W. B. Melick, Ft. Edward
6. "The Function of the Heart Muscle in Relation to Diagnosis and Therapeutics,"  
Charles Stover, Amsterdam
7. "Diabetes" . . . . . George Comstock, Saratoga Springs
8. "Chronic Gastro-Intestinal Disorders in Older Children" . . . . . F. Vander Bogart, Schenectady
9. "Tuberculosis in Children,"  
H. S. Goodall, Stonywald Sanitarium
10. To be Announced. . . . . C. C. Trembly, Saranac
11. To be Announced. . . . . George Lenz, Gloversville

#### Afternoon Session.

1. Symposium on Poliomyelitis—
  1. "Etiology and Pathology,"  
Paul A. Lewis, Rockefeller Institute
  2. "Symptomatology and Treatment,"  
C. F. Clowe, Schenectady
  3. "Surgical Sequels" . . . . . J. B. Garlick, Schenectady
 Discussion opened by N. A. Pashayan, Schenectady.
2. Symposium on Surgical Diseases of Upper Abdomen—
  1. "Ulcer of Stomach and Duodenum,"  
C. G. McMullen, Schenectady
  2. "Gall Stones" . . . . . C. C. Madill, Ogdensburg
  3. "Malignant Diseases of Upper Abdomen,"  
W. P. Faust, Schenectady
  4. "End Results of Gall Bladder Surgery,"  
E. Macd. Stanton, Schenectady
 Discussion opened by D. C. Moriarty, Saratoga Springs.

## COUNTY SOCIETIES.

### MEDICAL SOCIETY OF THE COUNTY OF ERIE.

REGULAR MEETING, JUNE 20, 1910, AT BUFFALO.

#### PROGRAM.

##### BUSINESS SESSION.

President Wende in the chair.

Before proceeding with the regular order of business, President Wende called for reports of special committees.

Dr. C. Sumner Jones, President of the Milk Commission, made a verbal report of the work of the Commission since its existence. He gave an account of the condition of the herds, the stables, food, and general methods employed in the production of certified milk. He stated that the Commission did not receive any compensation for its work, the only expense connected with it being the remuneration of the bacteriologist and veterinarian, and this compensation comes out of the cost of the certified milk. He asked for the co-operation of the County Society and stated that it will depend upon physicians whether they want to recommend certified milk to their families and patients.

Dr. Charles G. Stockton, Chairman of the Committee for the purpose of inviting the American Medical Association meeting to Buffalo in 1911, made a complete report of the splendid work done by the various sub-committees, particularly that done by Dr. Lytle. He also stated that there was no "log rolling" at the St. Louis convention; that the invitation and its results were conducted entirely upon their merits. A number of Buffalo's friends who had pledged their funds as well as co-operation were compelled to leave before the close of the convention and the result was that Buffalo was beaten by Los Angeles by a vote of 61 to 58.

The minutes of the Council meetings held April 23, May 10, May 14, and June 20, 1910, were read by the Secretary, and, on motion were approved as read.

Dr. Hopkins, Chairman of the Committee on Public Health, made a report, and the following resolutions were passed:

*Resolved*, That the Medical Society of the County of Erie heartily endorses the wise recommendation of Health Commissioner Wende, of 1908, relating to the matter of defective school children and of Open-Air Schools.

*Resolved*, That we consider this subject to be one of supreme importance to Buffalo, by reason of the enormous number of such defectives; more than 8,000, and also by reason of the long well-known poor ventilation in nearly all of our public schools.

*Resolved*, That we urge this matter upon the attention of our Department of Education, as one of vital importance and one which demands prompt attention and intelligent and efficient treatment.

On motion of Dr. McKee, the committee was requested to take up and look after the question of ventilation of the proposed Hutchinson High School.

The report of Dr. Grant, Chairman of the Board of Censors, was read.

Dr. Wall then offered the following resolution which, under the rules, must lie on the table until the next meeting:

*Resolved*, That the by-laws be amended by adding the following: Chapter XIII, Section 2. This Society shall be governed by the code of ethics of the American Medical Association.

Dr. McKee, Chairman of the Committee on Membership, presented the names of twelve applicants who were duly elected to membership.

This makes 101 new members elected this year, and brings the total membership to 496.

The scientific part of the program consisted of stereopticon slides illustrating pathological and physiological research, was then carried out as follows:

Dr. George F. Cott gave the first part, followed by Drs. Gibson and Meisenbach.

#### SPECIAL MEETING, JULY 1, 1910, AT BUFFALO.

The following resolutions were passed:

*Resolved*, That the Medical Society of the County of Erie co-operate with the Medical Society of the State of New York in opposing, in every way, the efforts of the New York Anti-Vivisection Society to improperly influence public opinion in favor of legislation detrimental to the public welfare.

*Further Resolved*, That the President and Council of this Society do their utmost to prevent such an exhibit as the New York Anti-Vivisection Society has been conducting in New York City from being exhibited in Erie County, and to counteract the effect of any such exhibit by telling the truth concerning the same.

#### BROOME COUNTY MEDICAL SOCIETY.

REGULAR MEETING, AT BINGHAMTON, JULY 5, 1910.

"The Outlook in Medicine—An Appreciation," Arthur Chittenden, Binghamton.

"Manic-depressive Insanity and Dementia Præcox," Chas. G. Wagner, Binghamton.

"Cancer of the Stomach," J. H. Martin, Binghamton.

#### SPECIAL MEETING, AT BINGHAMTON.

It is with sadness and regret that we acknowledge the death of Dr. Charles B. Richards, who was for many years a distinguished and honored member of this Society.

*Resolved*, That we have lost a member of the profession whose life was one of great purpose and lofty aims, of unusual purity and integrity of character, whose conduct was ever ethical and uplifting. He was a man of great positiveness of thought and character yet broad-minded and generous both to his patient and his brother physician. He rendered distinguished services to his country in the Civil War. He rose to brigade surgeon. He specialized in nervous and mental diseases, and became distinguished as an alienist in this section of the State.

*Resolved*, That in his death the profession has lost one of its ablest members, one whom we delight to honor as a brother physician.

*Resolved*, That this community has lost one of its best and most exemplary citizens.

*Resolved*, That we unite and extend to his widow our earnest and sincere sympathy in her deep bereavement.

*Resolved*, That we send her a copy of these resolutions and cause them to be spread upon the records of this Society, also that a copy of these resolutions be sent to the NEW YORK STATE JOURNAL OF MEDICINE and the press of the city.

#### MEDICAL SOCIETY OF THE COUNTY OF GREENE.

MID-SUMMER MEETING, JULY 12, 1910, AT CATSKILL.

"X-Ray and High Potency Treatment," W. M. Rapp, Catskill.

"Vaccine Therapy," T. D. Dockstader, Ravena.

"Treatment of Puerperal Convulsions."

Discussion opened by Dr. C. E. Willard, of Catskill.

#### MEDICAL SOCIETY OF THE COUNTY OF WARREN.

SEMI-ANNUAL MEETING, AT GLENS FALLS, JULY 13, 1910.

"Excerpts in Diarrhœal Affections," R. J. Eddy, Glens Falls.

"Purpura with Report of a Case of Hemorrhagic Type," J. M. Griffin, Warrensburg.

"Reduction and Treatment of Fracture of the Long Bones," J. J. Dever, Glens Falls.

#### MEDICAL SOCIETY OF THE COUNTY OF GENESEE.

REGULAR MEETING, AT LE ROY, JULY 6, 1910.

"Goiter," Martin B. Tinker, Ithaca.

"Tuberculosis," Chas. W. Hemmington, Rochester.

Papers were also read by Drs. A. C. Snell, of Rochester, and R. M. Andrews, of Bergen.

#### MEDICAL SOCIETY OF THE COUNTY OF FRANKLIN.

SEMI-ANNUAL MEETING AT SARANAC LAKE, JUNE 14, 1910.

"The Necessity and Usefulness of a County Laboratory," E. R. Baldwin, Saranac Lake.

"Treatment of Skin Cancers," W. N. MacArtney, Fort Covington.

"Observations in Foreign Clinics," J. A. Grant, Malone.

"An Obscure Lung Condition," H. M. Kinghorn, Saranac Lake.

"Report of Two Interesting Cases Illustrating the Importance of Laboratory Aids in Diagnosis," A. K. Krause, Saranac Lake.

Dr. Garvin presented by request a specimen of heart and lungs taken from a patient who died of aneurism complicated by tuberculosis, and gave an account of the history.

Dr. Kinghorn moved that a committee of three be appointed by the President to report on the establishment of a County Laboratory at Malone. Carried.

#### THE MEDICAL SOCIETY OF THE COUNTY OF WYOMING.

REGULAR MEETING AT SILVER LAKE, JULY 12, 1910.

SCIENTIFIC SESSION.

"Rectal Diseases and Their Treatment," Edward Clark, Buffalo.

"Adenoids," Clayton Brown, Buffalo.

"County Laboratories," C. W. Hemmington, Rochester.

"Vivisection and Animal Experimentation," Geo. H. Witter, Wellsville.

### BOOKS RECEIVED.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

**THE PRACTICAL MEDICINE SERIES.** Comprising ten volumes on the Year's Progress in Medicine and Surgery. Under the general editorial charge of GUSTAVUS P. HEAD, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. CHARLES L. MIX, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Series 1910. Chicago. The Year Book Publishers, 40 Dearborn Street.

**VOL. I. GENERAL MEDICINE,** edited by FRANK BILLINGS, M.S., M.D., Head of Medical Department and Dean of the Faculty of Rush Medical College, Chicago; and J. H. SALISBURY, A.M., M.D., Professor of Medicine, Chicago Clinical School.

**VOL. II. GENERAL SURGERY.** Edited by JOHN B. MURPHY, A.M., M.D., LL.D., Professor of Surgery in the Northwestern University; Attending Surgeon and Chief of Staff of Mercy Hospital, Wesley Hospital, St. Joseph's Hospital and Columbus Hospital; Consulting Surgeon to Cook County Hospital and Alexian Brothers Hospital, Chicago, Ill.

**VOL. III. THE EYE, EAR, NOSE AND THROAT.** Edited by CASEY A. WOOD, C.M., M.D., D.C.L., ALBERT H. ANDREWS, M.D., and GUSTAVUS P. HEAD, M.D.

**TWENTY-FIFTH ANNUAL REPORT** of the State Board of Health of the State of Rhode Island for the year ending December 31, 1902, and including the report upon the registration of births, marriages, and deaths in 1901. Providence. E. L. Freeman Company, State Printers. 1910.

**DISEASES OF THE HEART AND AORTA.** By ARTHUR DOUGLASS HIRSCHFELDER, M.D., Associate in Medicine, Johns Hopkins University. With an introductory note by LEWELLYN F. BARKER, M.D., LL.D.; Professor of Medicine, Johns Hopkins University. 329 illustrations by the author. Philadelphia and London. J. B. Lippincott Company.

**PRACTITIONER'S CASE-BOOK.** For Recording and Preserving Clinical Histories. Prepared and Arranged by the Editorial Staff of the *Interstate Medical Journal*. Publishers: Interstate Medical Journal Co., Metropolitan Building, St. Louis, Mo.

### BOOK REVIEWS.

**THE ROENTGEN RAY IN PEDIATRICS.** By THOMAS MORGAN ROTCH, M.D., Professor of Pediatrics, Harvard University. J. B. Lippincott Company, 1910. Cloth, \$6.00.

This is a book of 224 pages and 303 illustrations, of which 264 are numbered plates occupying additional full pages. On the title page appear the sub-titles, "Living Anatomy and Pathology" and "The Diagnosis of Diseases in Early Life by the Roentgen Method." The author proposes to "deal as little as possible with the questions of apparatus and technique and to devote the entire space to actual clinical teaching of the subject." The teaching is accomplished by means of illustrative plates accompanied by legends and explanatory text. The plates are excellent half-tones from selected roentgenographs of normal and pathological subjects. Much of the material for the illustrations is taken from the records of the Children's Hospital (Boston). The fact that the X-ray plates are selected from the work of such able roentgenologists as Dr. A. W. George, Dr. Percy Brown and Dr. Miner, is a guarantee of their excellence. Most of the subjects are of the sort that lend themselves well to reproduction, and the printer's work is exceedingly well done.

The book contains, in addition to the fairly comprehensive atlas, over 200 pages of text devoted chiefly

to the anatomy and pathology of childhood and adolescence. Although intended primarily for students and general practitioners, the book will form a valuable addition to the library of the roentgenologist.

For the benefit of the student and the clinician more emphasis might have been laid on the important differences between the roentgenograph and the photographic image, the stumbling block over which so many fall into errors they do not suspect.

The most original suggestion in the book is that of obtaining by X-ray examination of the wrists and hands of children a "classification of the different periods of early life on an anatomic basis, which would be of practical use in athletics, in school, and for questions relating to child labor." The facility with which the stage of development of the carpal epiphysis can be determined by the X-ray makes this suggestion by the author very promising, but proof is needed that an accurate anatomic index may be obtained in this way, and that such an index can be safely used as a basis for the classification proposed. On the whole the work is one of the most interesting and valuable of the American contributions to the literature of roentgenology.  
E. W. C.

**OPHTHALMIC SURGERY.** A Treatise on Surgical Operations Pertaining to the Eye and Its Appendages, with Chapters on Para-Operative Technic and Management of Instruments. By CHARLES H. BEARD, M.D., Surgeon to the Illinois Charitable Eye and Ear Infirmary; Oculist to the Passavant Memorial Hospital, Chicago. With 9 plates, showing 100 instruments and 300 other illustrations. Philadelphia. P. Blakiston's Son & Co., 1012 Walnut Street. 1910. Price, \$5.00 net.

The book, which is one of over 800 pages, well printed in clear type, on good paper, will fully repay its purchaser. It is easily read, the language of the text being clear, concise and to the point, without superfluous words. The illustrations are profuse and are all good. Many of them, which are original, are excellent.

Naturally, much that is in the book can be found in other works on ophthalmology, for there is not enough of the new to warrant a work of this size if there were not other reasons for its issue. Whatever there is new in the book is an expression of the thoughts and ideas of its author, which, alone, are of sufficient value to warrant its publication. There is nothing in the book to which serious objection can be made except the article on "Methods for the Determination of the Refraction of the Eye." Aside from this the reviewer takes pleasure in endorsing the work and in recommending it to the profession.

Even the article in question will find many endorsers and in some sections of the United States will doubtless receive the endorsement of the majority of ophthalmologists.

The part to which the present reviewer takes especial exception is the statement made at the top of page 639, where one gets the impression that the author of the book recommends that a mydriatic should be used in all patients under forty-five years of age. On page 636 this statement is called into question by the author himself, who says that a cycloplegic is dangerous after forty years of age.

In the opinion of the present reviewer the use of mydriatics, or cycloplegics, as a routine practice in determining the refraction of the eye is unwarranted, and, except in special cases produces no good effects and confers no knowledge which could not be obtained without its use.

The refraction of the eye can be determined by the use of the trial case and the ophthalmoscope sufficiently accurately for all practical purposes, unless, perhaps, we except astigmatism, in which case the ophthalmometer of Javal gives rapid and accurate information, which, in the large majority of cases, in the reviewer's

experience, is more accurate than can be obtained by the use of cycloplegics and the retinoscope. That there are cases, as for instance in young children, where mydriatics are essential for the correct determination of the refraction, and sometimes in older patients where cycloplegics are indicated for their therapeutic effect, even where no disease exists, the reviewer concedes to be the fact, but to advocate the routine use of these drugs in all cases of refraction in patients under forty-five years of age, the reviewer cannot endorse, nor does he believe it to be doctrine or good practice.

Aside from this the reviewer recommends this book to his colleagues, expecting himself to consult it frequently.

F. VAN F.

**PREPARATORY AND AFTER TREATMENT IN OPERATIVE CASES.** By HERMAN A. HAUBOLD, M.D. Clinical Professor in Surgery, New York University and Bellevue Hospital Medical College. With 429 illustrations. New York and London. D. Appleton & Company. 1910. Price in cloth, \$6.00.

The aim of this work is to furnish a missing link, to acquaint the general practitioner with surgical methods of preliminary and after treatment, a very worthy object and excuse for the pen. Many surgeons feel the necessity of turning over to the family physician the after care of cases which have been referred to them almost immediately following operation. In general terms and writing with reserve, the reviewer thinks this practice should be condemned as long as the case presents any serious surgical aspect. Surgical methods do not cease with the operation; to the contrary the subsequent care is just as important, and in some instances more so than submitting the patient to the original operation. There are known instances of almost criminal neglect on the part of the operating surgeon who considered his services ended when he closed the wound and left the responsibility of the after care to an inexperienced man untrained in surgical methods.

Loyalty to the family physician is one thing, but to allow a surgical case to be treated by a physician who lacks surgical training before the case has ceased to present the possibility of serious surgical complications is not to be commended. The surgeon who possesses honest intentions and has the welfare of his patients at heart will look after the after treatment himself, or at least will supervise the surgical work done by the physician; at times, however, this is not possible and the needs of such work as the author presents are keenly felt. It should receive a warm welcome not only among practitioners who are doing surgical work, but it should also be popular with embryonic surgeons and hospital internes desirous of becoming familiar with modern surgical preparatory and after treatment of operative cases. This work furnishes a large amount of valuable information and represents one of the best in this recently invaded field of literature.

Half of the work is devoted to general considerations, preparation of the patient, instruments and dressings, operator and assistants. This portion of the work also takes up shock and secondary hemorrhage, and includes excellent chapters on the operating room, drainage, suture and dressing of operative wounds. The more common post-operative complications receive due general attention. A chapter is devoted to post-operative dietetics and is worthy of favorable comment. The second half of the work deals with the operative after treatment of special regions. It is here that the author shows his wide experience and good judgment. He incorporates minute details which mark close observation of surgical patients. The book is profusely illustrated. It is noted that the names of instrument makers and surgical supply houses appear frequently in the cuts. The acceptance of electrotypes for economical reasons from even well-known and reliable manufac-

turers shows poor taste. There are a few errors in diction and typography which will undoubtedly be corrected in a subsequent edition.

R. H. F.

**SURGERY: ITS PRINCIPLES AND PRACTICE.** By various authors. Edited by WILLIAM WILLIAMS KEEN, M.D., LL.D., Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia, and JOHN CHALMERS DACOSTA, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volume V. With 550 illustrations, 45 of them in colors. Philadelphia and London. W. B. Saunders Company. 1909. Price, cloth, \$7.00 net.

The present volume brings to completion this great treatise which is undoubtedly the best on surgery in the English language to-day. The work has grown to above one-third larger than originally planned, and Dr. Keen and his many collaborators are much to be congratulated upon the successful accomplishment of so great an effort. While the work must necessarily show some of the overlapping and lack of complete order of any work by many writers, these defects are reduced to a minimum by skillful editorship. The result is a very complete summary of our latest surgical knowledge, presented in a series of handsome volumes which invite use through their convenient size and arrangement.

Volume V opens with an exhaustive monograph on the surgery of the vascular system from the masterhand of Matas. The most recent developments of the surgery of the heart, the suture of arteries, and the treatment of aneurism are discussed along with the more trite divisions of the subject, which are also given due consideration. A very good section on the surgery of the female genito-urinary organs occupies some 200 pages, the authors being Montgomery, Fisher and Bland. Gibbon discusses the general subject of surgical technique, including direct blood transfusion. The proportions of boric acid and salicylic acid as given by him in the formula for Thiersch's solution are incorrect, and should be reversed. The ligation of arteries, operations on bones and joints, amputations, and plastic surgery are treated, with the exception of the last, at some length. The "surgery of accidents" forms a novel chapter, and also contains suggestions for the organization of railroad hospitals and staffs. In view of the constantly increasing number of casualties incident to modern life, such a special heading may be fitting. The surgery of the parathyroid bodies is discussed by Charles H. Mayo and embodies our limited knowledge of these structures with Dr. Mayo's observation in an operative experience of over 1,000 goitres. The intra-cranial surgery of the fifth and eighth nerves is well presented by Frazier. Lennander's interesting chapter on the use and possibilities of local anesthesia was among his last writings. He gives preference to novocain combined with adrenalin.

Various miscellaneous short sections on the legal relations of the surgeon, the use of the X-ray, the organization of hospitals, etc., complete the volume. Like its predecessors, it contains many excellent bibliographies, which add greatly to its value as a work of reference.

R. W. W.

## DEATHS.

STEPHEN F. HORTON, M.D., Peekskill, died June 21, 1910.

CHARLES ZELHOFER, M.D., Brooklyn, died June 30, 1910.

MARK S. LEAVY M.D., Albany, died July, 1910.







*Photo by Pach Bros.*

DR. CHARLES JEWETT

# NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

ALGERNON THOMAS BRISTOW, M.D., Editor  
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Vol. X.

SEPTEMBER, 1910

No. 9

## EDITORIAL DEPARTMENT

### CHARLES JEWETT—IN MEMORIAM.

LIFE is a contest, the round world a battlefield, nor are the sharpest wounds those which are received amidst smoke and fire and swift flying death. The bloodless battles waged between the conflicting forces of civilization claim more victims than the red god of war, and in this conflict there are no truces. The warfare is unceasing. Into it is ushered every child born of woman, and we lay down our arms but once, and then forever. Happy and honored the man who dies sword in hand and face to his foe, whether that be disease or injustice or bitter wrong of other sort of which the world is full.

Charles Jewett, President of the Medical Society of the State of New York, died at his residence in Brooklyn on August 6, 1910. The day before his last and brief illness he was busily engaged in the practice of his profession and performed his final operation at the Long Island College Hospital August 5th. The work might well have been left to his assistants, both able and willing, but although oppressed by the heat of an August day Dr. Jewett did the operation himself. He seemed fatigued and looked worn. He left the hospital for his home.

The following day he intended to leave for Saratoga to visit his dearly loved daughter and spend a month in well earned rest. He lay down that night to his repose and passed from out the ivory gate of dreams through the chill and cloud-encircled portals of death, to a larger liberty, a fuller life and the fruition of human hopes. His last mission on earth was a mission of mercy. His whole life had been devoted to a struggle with disease. His last day was a battle. He fought a good fight to the very end, and then came rest.

Dr. Jewett was born in Bath, Maine, September 27, 1839, and had therefor nearly completed his seventy-first year.

He graduated at Bowdoin College, Maine, in 1864, with the degree of A.B. In 1867 he received from the same institution the degree of A.M., and in 1894 that of Sc.D. He moved to Brooklyn in 1867, having married Miss Abbie E. Flagg the preceding year. For a time he attended lectures at the Long Island College Hospital and then entered the College of Physicians and Surgeons, where he graduated in 1871.

Preceding and during the earlier years of his practice Dr. Jewett taught the physical sciences at the Adelphi Institute, but the increasing demands of his chosen profession soon obliged him to resign his professorship there and devote himself exclusively to the practice of medicine.

Of broad education, his trained intellect soon brought him to the front and in 1880 he received the appointment of professor of obstetrics in the Long Island College Hospital. In 1899 he was elected professor of gynecology, both of which positions he held at the time of his death. He was a vigorous and lucid teacher, a pioneer in the application of the modern principles of asepsis to obstetrics and gynecology.

He was widely and deeply learned. His was no narrow mind. He astonished those who knew him intimately with the breadth and scope of his knowledge, nor were the years after three score barren or decadent. His most fruitful decade was his last. He not only kept abreast of modern science, but was ever a leader among leaders and was so recognized by his peers.

He had not many peers, and of him it might most truthfully be said that he was "Primus inter pares." No man in his profession has ever brought greater honor to the city of his choice, the scene of his labors and life work. He was truly a great man but modest withal and of a gentle spirit.

There were no honors which the profession of his city and of the state could confer on

him which had not been his. He was president of the Medical Society of the County of Kings quite early in his career, an honor which he thrice enjoyed.

At the time of his death he was the President of the Medical Society of the State of New York, which honored itself in honoring him. He was the first of the long line of presidents to die in office.

Dr. Jewett was president of the New York Obstetrical Society in 1894, of the American Gynecological Society in 1900.

He was an honorary member of the British Gynecological Society, of the Detroit Gynecological Society and Honorary President of the Obstetrical Section of the Pan American Medical Congress in 1893. He was a member and founder of the International Congress of Gynecology and Obstetrics. The professional appointments which he held in Brooklyn were numerous, although he devoted most of his time and energy, apart from a large private practice, to his teaching and hospital work in the Long Island College Hospital. His advice was eagerly sought, however, by many other institutions. He was consulting obstetrician to the Kings County Hospital, consulting gynecologist to the Bushwick Hospital, consulting physician to St. Mary's Hospital, to the Swedish Hospital, German Hospital and St. Christopher's Hospital.

He was a voluminous writer, but when he wrote he always had something to communicate to his brethren which was worth while. He was perhaps best known as editor and contributor of Jewett's System of Obstetrics, which reached three editions.

His contributions to various journals were many and varied.

His latest paper was a masterly and philosophical disquisition in the principles which should govern repair of the pelvic floor and outlet for uterine and vesical prolapse.

Dr. Jewett was not only a great obstetrician and gynecologist, but a highly accomplished physician as well. He was versed in modern methods, whether of diagnosis or treatment, and never took a backward or laggard step.

He will be greatly missed in the community which he blessed with his presence.

There is no gap in life which time does not bridge, no man so important or so necessary to a community that one must say his loss is irreparable. Art is long indeed and time is fleeting, but we shall not soon again see in our midst a man so well rounded or informed in all branches of learning, so eminent in one. Charles Jewett died in the fulness of years, and the fulness of power. He had never been more useful to the community or more honored than when death took him.

Dealing almost wholly with the material part of man our profession is prone to scepticism. We find that a little vessel has ruptured

within the skull and if death does not come speedily we witness the wreck of a great intellect, the warping and contracture of all the faculties of the mind and so we say when the end comes: This is the end. The clay has returned to clay. Death is but annihilation. But is it? We, all of us, believe in the doctrine of the conservation of energy. Is this to be applied alone to the dull atoms and molecules of chemistry? Are these to survive in other forms and the soul of man to perish?

Are the miracles of self denial and abnegation which every physician witnesses but irresponsible forms of molecular motion? Did the martyrs indeed die in vain, for if death ends all, of what avail are all these, since they are but the product of cellular activities which alternately perish and renew their substance from day to day until the force which we call life ceases to actuate them?

Osler some years ago delivered a lecture at Cambridge on "Immortality" and came to the conclusion that it could not be proved. If, however, we depended on mathematical proof for our beliefs, we should believe nothing save the propositions of Euclid, for those only are capable of absolute proof. Life is made up of phenomena and experiences. Concerning the phenomena we can formulate certain laws from which in our experience the phenomena do not depart. Of the ultimate cause we are all of us as ignorant as little children, as ignorant as we are of the source of life and love and our reasoning power. Are the most precious things of life, the things which the individual, the family and the nation hold most dear born of a few grey cells and 95 per cent. water? Who can really believe that and read history? If that be true, then justice is a mockery and for society to punish the criminal is merely an act of insensate rage, as one who revengefully kicks a stone which has caused him to stumble.

"I think we are not wholly brain,  
Magnetic mockeries; not in vain  
Like Paul with beasts, I fought with Death;  
Not only cunning casts in clay;  
Let Science prove we are and then  
What matters Science unto men."

So sang one of England's greatest poets, a true seer. So says that still, small voice which ever whispers in the inmost chambers of our hearts. No mere negations of science will ever silence that voice. Life is but a chill grey mist at best. Who would quench the one light which beams through the vapors which enshroud us? For unnumbered ages all the races of the sons of man have followed the Gleam.

Said Socrates, the wisest of the ancients before he drank of the cup:

"Wherefore be of good cheer about death and know of a certainty that no evil can happen to a good man either in life or after death."

A. T. B.

## FLORENCE NIGHTINGALE.

THE recent death of Florence Nightingale, in her ninety-first year, has closed the career of one of the greatest historic figures of the nineteenth century; one whose influence upon the life of her age will not be fairly measurable until her life and letters have been fully published; perhaps not even then, as it is believed that much of the most crucial and critical part of her life work, namely, the drawn battle between her intellect and spirit and the entrenched political machine of the British War Office at the time of the Crimean War, will ever be known until the secret documents of that time are opened. By a strange decision of destiny this delicate woman, who embodied in her personality all the gentleness and tenderness sung by poets, was throughout her long life a militant of the most uncompromising type. Like Pasteur, of whom she was a contemporary, her life was one long conflict with fatalism, superstition, and ignorance. The war over, she set herself to usher in a new era in the care of the sick, with what brilliant success is known by all. Not sufficiently are her great proportions as a sanitarian generally recognized, nor her remarkable force as a teacher and revealer of truth. That the medical profession owes her a debt of honor is undoubted. She was the first to define in uncompromising words the correct form of military-medical organization and to declare the imperative necessity of placing science in supreme command in army hospitals. Hers were the suggestions that were first carried out in army medicine by the astute Japanese. "If you treat your chief medical officer like a schoolboy," she wrote trenchantly to the haughty War Office, "you will have a schoolboy for your chief medical officer." As an apostle and a prophet of disease-prevention and the culture of health Miss Nightingale ranks first among English-speaking people. Only Pasteur, the incomparable humanitarian, looms up in equal proportions by her side in reverence and enthusiasm for health. From Miss Nightingale another heroic pioneer, Elizabeth Blackwell, first received the thought that sanitation was the supreme goal and crown of medicine. It is said that Miss Nightingale had once desired to study medicine, but it must be admitted that the glory of her life and its influence could not have been greater than she made it as the first among nurses. To nurses especially she appealed to carry the gospel of health, and it is peculiarly interesting to compare her early writings upon this subject, dating back some forty-odd years, with the remarkable extensions of the trained nurse's activity to-day along preventive, or the so-called social, lines of work.

L. L. D., R. N.

## OUR ADVERTISERS.

TWO years ago the House of Delegates voted to refuse all advertisements of medicines and medical preparations which have not received the approval of the Council on Pharmacy of the American Medical Association. It was a move in accordance with the general tendency so fortunately prevalent to hold the advertiser to strict account for the truthfulness of his statements. It was a righteous move, but one which involved a large financial loss to the STATE JOURNAL.

The policy of the JOURNAL as directed by the House of Delegates adds value to the advertisements carried in its pages, when its readers realize that extravagant and fake statements are not allowed to appear in its columns. This not only protects the advertiser from unscrupulous competition, but protects the members of the medical profession from the impositions from which they have suffered in the past.

We have a Directory of Physicians in this State, but there is nothing of the sort for nurses. If a physician wants a nurse it is now necessary for him to call up various agencies or homes and inquire. The pages of this journal offer an excellent medium of exchange between the doctor and the nurse.

The Publication Committee offer to publish the name, school and telephone number of any nurse for one dollar a year.

It is desirable that such a list should be classified so that physicians in any city in the State can immediately refer to the JOURNAL and under the name of their own city find out the address and telephone number of the nurse desired. This would add much to the value of the JOURNAL, for though we have cards from various registries sent to us from time to time, they are not always available.

We hope that the members of the nursing profession will see the value to them of such a proposition.

This JOURNAL goes to 7,000 physicians in this State and is read by all of them. Almost all of these men employ trained nurses and such a directory would bring the names of the nurses so registered before the eyes of the profession twelve times a year, which would be greatly to the advantage of the nursing profession.

To the members of the State Society we say, that to extend the scope and usefulness of this JOURNAL is only a question of money.

Your advertisers are assisting you to publish your JOURNAL. It is to your interest to see that they get returns for their investments. The committee accepts their advertisements. This acceptance is a guarantee of their good faith and your security. One good turn deserves another. If advertisers get no returns from their advertising, they will discontinue the advertisement. It is therefore in the interest of the JOURNAL that members of the society should patronize those who patronize the JOURNAL.

## UNUSUAL CASE OF HYSTERO-SALPINGOSTOMY.

By CHARLES JEWETT, M.D.,

**M**RS. X., 24 years of age, married two years, never pregnant. In good general health. Menses normal. No history and no appreciable evidence of gonorrhœa. Uterus retroverted. Apparently no other pelvic abnormality. Husband denied venereal disease. Spermatozooids numerous and active.

February 2, 1910, the uterus and tubes were exposed through a short median abdominal incision. The inner portion of each tube, about one-third its entire length, was found impervious, being reduced to a mere cord. The outer two-thirds was normal. The malformation was believed to be congenital. Each tube was resected from the uterine cornu and the entire atresic segment removed, care being used not to injure the vascular supply of the sound portion remaining. The fundal incision was lengthened transversely till the endometrium was easily accessible. The proximal end of the sound segment was split for a half inch and each flap thus formed was fixed with a single catgut suture to the uterine mucosa close to its cut edge. The uterine musculature and peritoneum were then closed securely except where traversed by the tube and the latter still further secured by two or three sutures passed superficially through the uterine wall and engaging the peritoneal coat of the tube.

Free communication through an oviduct of ample lumen was thus established between each ovary and the uterine cavity. The fundus was restored to its normal position by the round ligament operation of Webster and the abdomen closed. The patient was out of bed within less than two weeks.

Hystero-salpingostomy was first performed by Dr. Alexander H. Ferguson in June, 1899. Six cases were reported by him in the *Medical Fortnightly* for July 25, 1903. A detailed account of the operation was published by Dr. Raymond C. Turck, in the *NEW YORK MEDICAL JOURNAL*, June 12, 1909. It appeals to the gynecologist as a more rational procedure than the plastic operations hitherto employed in the surgery of tubal obstruction. The clinical results are better. After the so-called phymosis operation, even though the serous and mucous coats of the tube be accurately sutured together with a view to maintaining the patency of the abdominal end of the stump, pregnancy has followed in not more than 7 per cent. of cases. With the technic just described 27 per cent. of successes are claimed. Failure of the usual plastic methods is no doubt often due to occlusion of the free end of the stump by adhesion of overlying peritoneal surfaces. Under the Ferguson technic, with care not to injure the fimbriated extremity of the tube, the abdominal orifice is much less likely to be-

come closed. Again, a more ample lumen is afforded when the outer end of the tube is usable for implantation. Obviously the procedure in question is practicable only when the distal part of the tube is in fairly sound condition.

## THE DUTY THE MEDICAL PROFESSION OWES THE WOMEN WITH CANCER.\*

By WALTER B. CHASE, M.D.,

BROOKLYN, NEW YORK.

**T**HE present revival of interest in preventive medicine is a natural and logical reflex of medical sentiment. This sentiment has stimulated the spirit of research of the etiology, prevention and cure of all preventable and curable diseases. Probably nothing has given a greater impetus to this investigation than the comparatively recent discovery of antitoxin as an antidote for diphtheria, and Flexner's serum as a remedy in cerebro-spinal meningitis.

At present the dominant desire in the medical world is to determine the cause and cure of malignant diseases and find a remedy for tuberculosis. The systematic study of the histology of cancer by those eminently fitted for such work, supported by the generous contribution of money, gives renewed hope that the problem will yet be solved. The relentless suffering and fearful mortality attending uterine cancer is a matter of appalling interest to the patient and her friends; while in tuberculosis the suffering is far less intense, and public and private benefactors are laid under contributions for their relief. Perhaps in the whole domain of disease, nothing is more pathetic than the condition of those suffering from advanced uterine cancer, condemned to suffering and to death, while little effort in many to palliate their suffering save the employment of opiates and irrigation. Now that the best minds are seeking to know its cause and cure, it is time the rank and file of the medical profession began to consider seriously the question whether *more effective* measures cannot be used to relieve these sufferers. A great momentum should be given to this movement when it is remembered that conservative statistics show in registration areas that one woman out of eleven, of all ages, dies of cancer, and that above the age of thirty-five years the mortality is one in nine. Specifically what is the obligation the medical profession owe this class of cases? In my conception of this duty the answer may be epitomized under five heads,—the first obligation consists of such study and investigation patiently and persistently pursued as will establish the etiology of the dis-

\* Read at the annual meeting of the Medical Society of the State of New York, January 26, 1910.

ease. Second, the acquirement of such knowledge of the symptomatology of uterine cancer as will insure the earliest possible diagnosis. Third, such mastery and familiarity with methods of treatment, radical and palliative, as will lead to the best results. Fourth, the practical application of this knowledge as soon as the diagnosis is made, and Fifth, larger and better facilities in homes, sanatoria, or hospitals, provided by some form of private munificence of public benefaction for those whose slender resources make such care impossible, and some well devised plan for the dissemination of knowledge among women on this subject. It appears to me that a proper consideration of these five propositions will facilitate a better appreciation of professional obligation, reveal in some measure the embarrassments which hamper the profession in their efforts and give emphasis to the imperative necessity of concentrated effort for their relief.

As regards the obligation the profession are under in the first of the five fundamental propositions it appears there is no ground for criticism.

The study of etiology is in competent hands, not in one medical center, but in many institutions, by those eminently fitted for their work, which is entitled to public and professional confidence. The results following similar lines of study of other diseases inspires the hope that the day is not far distant when the cause of cancer will be known and an antidote found. Second, it will be admitted without argument that the knowledge of the symptomatology of uterine cancer among some practitioners is inadequate to make a diagnosis until the disease has so far advanced as to make radical treatment of doubtful utility. It is difficult to estimate the suffering and mortality of such failure. Few or none will dispute the probability that there is a prehistoric stage of uterine cancer, which, if recognizable, would admit of radical curative measure in many and possibly most cases. Unfortunately such information we do not as yet possess.

None can gainsay the fact that grave difficulty surrounds the early diagnosis of this disease. This arises in part from similarity between the symptoms of cancer and other ulcerative and hemorrhagic uterine diseases. This truth carries with it its own lesson: First, that any symptoms which make possible the presence of malignancy *must in every case* be differentiated from the symptoms of benign troubles. Failure to do so is the first step, which in numberless cases has led to a disastrous end.

My criticism is not that any given practitioner does not possess the requirements for such diagnosis, but that he deprives his patient of the advice and skill of some one who by training and experience might have reached a definite conclusion.

It is no reflection on the general practitioner that he is not qualified to manage grave diseases of the eye, but his failure to secure for his patient the services of one who does will not clear him of responsibility in the case.

I am persuaded that under existing circumstances this is the most important lesson this paper brings to the rank and file of the medical profession of this society and the great constituency it represents as well as to the entire medical profession. First, it is safe to declare no obligation is placed upon the medical profession greater than that imposed on those who assume the responsibility of early diagnosis and treatment of uterine cancer. Second, the possession of such knowledge as will enable the attendant to adopt such methods of treatment as will secure the best results. (This will be considered later on.) Third, the practical application of this knowledge *as soon as* diagnosis has been made. Fourth, procrastination here is to be deprecated. Fifth, the need of larger facilities for the care of these dependent cases in homes, sanatoria or hospitals, which appeals for assistance to the humane sentiment of the public. This subject will be discussed in a later part of the paper.

The problem of the treatment of uterine cancer equals in interest and importance that of any question which demands consideration by the medical profession. The indication for early radical treatment is well understood and accepted, but unfortunately the indication for palliative treatment in the cases which have been denominated "inoperable" is to the most of practitioners a closed book.

It is a revision of this later opinion I have for years been laboring, and it is peculiarly gratifying to know that in the recent past, the subject is receiving attention by a goodly number of men whose influence will, it is hoped, make a lasting impression on the medical profession. First, as to radical treatment of corporeal cancer. If diagnosis is made before the parametria is involved prompt extirpation is indicated.

If the cervix is the seat of involvement, and the vagina is much implicated, efforts at radical extirpation with the knife are contra-indicated, and all that remains to be accomplished is in the nature of palliative treatment and is three-fold, the removal of all diseased structures compatible with the safety of the patient, the maintaining constant cleanliness of the parts, and the use of anodynes to relieve pain. The commonly accepted notion that all cases in which radical extirpation cannot be undertaken should be relegated to the class known as "inoperable" is wrong in theory and untenable in practice, and the principal barrier to rational and effective treatment. There are few, if any, of these cases save in the final stage in which appropriate treatment will not be useful in relieving suffering and prolonging life.

First as to the removal of diseased structure.

In the supposed inoperable cases a variety of topical applications have been urged on account of their supposed curative influence, but those found most effective are the potent escharotics, as arsenical or zinc paste, caustic potassa, etc. The objection to their use is found in the atrocious pain they produce, and the difficulty, if not the impossibility, of limiting their corrosive action. The ideal destructive agent should, as far as possible, be painless and subject to control in the limit of its destructive power. In a paper read before the section of Obstetrics and Gynecology of the American Medical Association in June, 1909, and published in the *Journal of the American Medical Association* of December 4, 1909, I urged the use of the thermo-cautery as meeting both these indications. Now as regards the efficacy of the thermo-cautery with proper platinum knives, either by the galvano-cautery or by the Pacquelin apparatus, I feel justified in affirming, from long experience that pain after such cautery is unusual or exceptional, save when the muco-cutaneous structures are inadvertently burned, and when the operation is done under anesthesia as it always should be.

Notwithstanding this, I was met with the old and delusive assertion, that the same results could be obtained by the use of caustics. There is no reason why the thermo-cautery cannot be used repeatedly if there are indications for its employment. The slough from the cautery separates in from one to two weeks and during this period and while granulating surfaces remain, daily dressings with oxide of zinc gauze afford great comfort to patient. In cases when healing takes place the daily dressings may be interrupted when the ulcer becomes of small size. This should be applied with the greatest gentleness, and usually with a Sims Speculum, and the patient is in the Sims position, to avoid the blades of the bivale speculum impinging on the tender and diseased structures. Douches may be employed of permanganate of potash, lysol, or borax water with the bag but slightly above the level of the pelvis. The necessity of cleanliness as related to diminution of pain in ulcerating surfaces is of the greatest moment. In one case I refer to in the paper mentioned, I (or my assistants) made over 700 visits demonstrating the possibility of carrying the patient to the end with almost entire absence of pain. Another advantage of the thermo-cautery over caustic is, with due precaution, there is little risk of injury to adjacent structures. A pre-eminent value of the thermo-cautery, resides in its power to close the lymphatic vessels, thereby obviating the danger of increasing infection and probably of equal, if not of greater, utility is its power to destroy pathogenic germs by heat, beyond the area of its positive cauterizing effect.

The medical profession is under lasting obligations to the late Dr. John Byrne, of Brooklyn,

for his contribution to this subject and the establishing of well-defined rules for the employment of the thermo-cautery. His tact and skill in teaching and practice are worthy of universal acceptance; and though received at first, with distrust when presented before the American Gynecology Society, they are now finding acceptance at home and abroad. His special skill consisted first in not going beyond the area of malignant infection, and second, in having the cautery knife hot enough (at a dull red heat) to burn the structure slowly, and yet not disintegrate them so rapidly as to cause hemorrhage. I have seen him, by this method, remove the cervix and nearly the entire uterine body, leaving little more than a shell of peritoneum.

I have operated on patients for advanced cancer involving the cervix and corpus, showing signs of grave systemic infection, who quickly lost their cachectic appearance after the operation. If deemed expedient the use of the thermo-cautery is no barrier to the employment of radium or the X-ray treatment, which I regret I cannot, for want of space discuss at this time except to say that a serious barrier to the use of radium is in its costliness. It may perhaps be urged by those unfamiliar with the cautery operation, that its employment is difficult of application, and therefore not available by the general practitioner; or that the difficulty attending its use is such as to preclude its employment save by an experienced operator. It must be admitted there is force in this statement, at the same time it may be affirmed that those accustomed to ordinary gynecological operations should become efficient in this sort of work. Those desiring more specific details as to the technic of the operation are referred to the April number of the *International Journal of Surgery*.

As to results obtained by this form of treatment I desire to quote briefly Dr. Byrne's statistics. Up to the time of his presenting this paper in question he operated on 367 cases, and at the end of five years 19 per cent. were yet alive; statistics unequaled as far as I am aware of any other operator, even in selected cases; whereas Dr. Byrne operated on *every case* which presented itself *without a single primary mortality*. In cases I referred to in my paper mentioned, two were reported as cured in which no hope was held out for recovery. At the end of nine and four years respectively these patients were free of disease. While my cases are fewer, compared with those of Dr. Byrne, the results have been no less satisfactory; first, as to the relief of the sufferer, and second, as to occasional cures in which the conditions warranted no such expectation. I regret time will fail me to record results by this form of treatment of other men. The late Dr. Skeene, of Brooklyn, had a large measure of success in the applications of



this treatment, and other well-known practitioners in Brooklyn and other parts of this State and the country have demonstrated its efficiency.

With this new opportunity I again appeal to the medical profession not to ignore a method of treating these cases, which has so much to commend it, and no objections save such as is found in the inertia or unbelief of the general practitioner or specialists who have never tested it. If any operator has given this method a fair trial and failed in noting good results I have yet to learn of it. What is the situation in this State? There are, it is believed, few if any communities in which there are not one or more helpless sufferers from advanced uterine cancer. If they chance to be in affluent or in even moderate circumstances, they have a greater or less degree of care according to the efficiency of their medical attendant. In many cases it is probable that little or no medical care is provided, and the nursing consists of the care of some kindly disposed friend or neighbor. Is there any parallel of suffering to be found in our broad land, where so little is done to alleviate suffering, and for which few or no hospitals are provided? If, in every small community and the larger centers of population, the physician or physicians could get in touch with a few intelligent and discreet women, whereby some quiet concerted action could be taken—not as alarmists—but of those seeking the welfare of a common womanhood, in the dissemination of needful information, it is believed that an advanced step would be taken and bring some good degree of relief. If some small measure of the widespread enthusiasm which gives impetus to the prevention and cure of those suffering from tuberculosis, within and without our profession, could be awakened for these more unfortunate victims, it would usher in a new hope for suffering humanity. To this end I invite the careful consideration and wise counsel of this great and influential body, to the formulation of intelligent professional and lay sentiment in every community, to the necessity of such concerted action as will lead to early diagnosis and more effectual treatment of those distressing cases. In some, perhaps many cases, the medical attendant has attributed the symptoms of which the patient complained, to the vagaries of the menopause, to uterine hemorrhage or some mild septic infection uncomplicated by malignancy, or he may have failed to note the relation between injuries of the cervix and the lesion present until the stage of opportune interference had passed, and all that remained to be accomplished was by palliative treatment; but if every legal practitioner of this commonwealth reached the full measure of his responsibility he would yet be hampered by that natural feminine delicacy and reticence which procrastinates seeking advice

until grave symptoms have declared themselves. This necessitates not only a closer relationship between the doctor and his patient, which is too frequently wanting, but the possession of information among all women as to the necessity of such knowledge as would impress on them the duty of confiding *every ailment* peculiar to themselves to their medical adviser as soon as noticed. If such an enlightened public sentiment could be established it would lead the way for at least intelligent and effective palliative management of the neglected cases and might open channels for successful appeal to those charitably inclined, in the establishment of homes or hospitals for those so-called inoperable cases.

If a movement could be inaugurated in every county of this State, possibly through the agency of its county medical society, in which physicians and intelligent women might be associated, in a common effort, humane and rational care might reach those unhappy and too often neglected cases for which no systematic and adequate provision has been made.

In view of the appalling fact that statistics of registration areas show that one out of eleven of all women die of cancer, and that after reaching the age of thirty-five years the mortality increases to one in nine; and that a large proportion of these are cases of uterine cancer, the question arises, whether the medical profession does not owe an unfulfilled obligation to this most unfortunate class of sufferers.

While large benefactions and well organized efforts are ministering to the comfort of those suffering from tuberculosis, there is in this State no systematic, humane plan to reach these more terrible cases condemned to helpless suffering and torturing death.

There is substantial basis for the belief that earlier recognition of the presence of malignancy in these cases would add something to the measure of relief to be obtained by radical or palliative treatment. Among these unfortunate women are large numbers whose resources make it possible for them to secure proper medical advice or capable nursing. It is also painfully apparent that hospital facilities for these incurables is entirely inadequate to meet the needs of society.

In view of these facts it is resolved:

*First.*—That the Medical Society of the State of New York shall by its president, appoint a committee of five, whose duty it shall be to urge on all practitioners of medicine in this State, greater care in making early diagnosis in cases of suspected uterine cancer.

*Second.*—Resolved that this committee be directed to devise some method by which along ethical lines women may be properly informed as to the reason why they should seek early professional advice in menstrual disorders; and that they are further instructed to consider some

more comprehensive plan whereby a larger diffusion of appropriate and vital knowledge may be promulgated on this very important subject.

*Third.*—Resolved that this committee be directed to report its recommendations at the next meeting of the society.

*Fourth.*—Resolved that the treasurer of this society be directed to honor payment of bills incurred for printing and needful correspondence (if not otherwise provided for), and that this committee be empowered to fill vacancies in its membership and appoint sub-committees if deemed expedient.

### THE IMPORTANCE OF CARE IN CLOSING THE ABDOMINAL WOUND.\*

By Le ROY BROUN, M.D.,  
NEW YORK CITY.

**I**N discussing the closure of laparotomy wounds and the post-operative accident of their early rupture, we will consider only those technically clean and in which suppuration does not occur.

Swaffield in 1904 collected the methods of closing the abdominal wound carried out by fifty-five of the best known surgeons in Germany and Austria. These he published under the several operators names.

It is of interest to note the wide range of difference in technique, varying from an adherence as routine, to the old through and through suture of silver wire to many modifications of layer suture and of varieties of suture material used.

The larger majority, however, were in the habit of using some form of layer suture. Many reinforced the sutured layers by a few non-absorbable through and through sutures extending either through all the layers, including the peritoneum or down to the peritoneum, but not including it.

This great variation in the manner of closing the abdominal incision exists with us as with surgeons in other countries.

The difference evidently has for its origin not routine custom but experience and dissatisfaction at one time or another with methods either practised by ourselves or our friends.

My interest in this subject was aroused by the following occurrence, subsequent to an abdominal section in private practice.

Mrs. A. C., forty-eight years old, was brought to me by her physician on account of a bloody uterine discharge following the establishment of the menopause.

She had given birth to four children and had had one miscarriage.

The local condition was one of a large uterus without the presence of fibroids.

A diagnosis of adeno-carcinoma of the body

of the uterus was made and a complete abdominal hysterectomy was done October 17, 1906. The abdominal wound was closed as was my routine custom, by bringing the edges of the peritoneum together with a continuous suture of number *one* catgut. Two or three safety sutures of silk-worm gut, including the skin and fascia, were introduced and tied after the skin was closed.

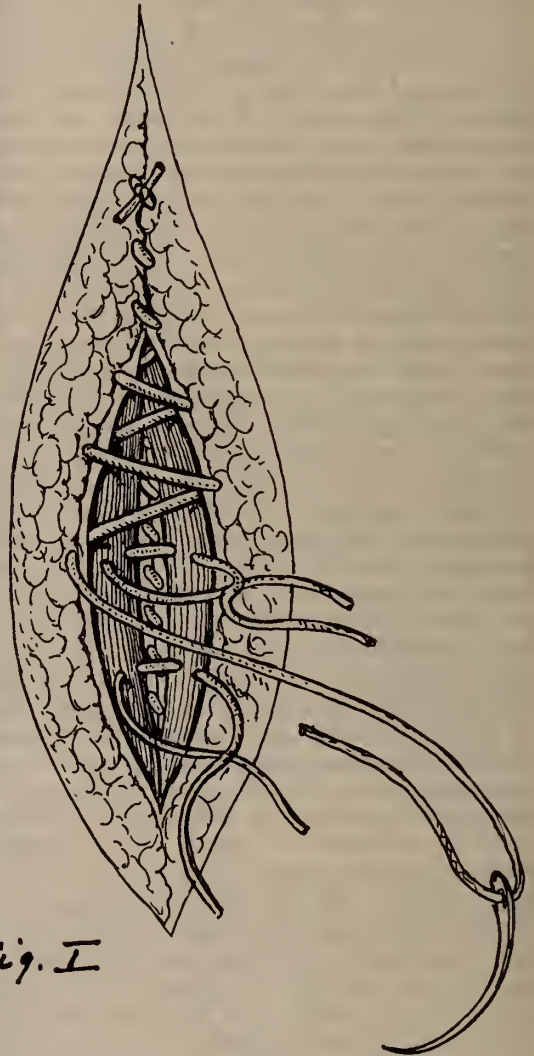


FIG. I.—Peritoneum is closed by continuous catgut suture, the muscle being coapted with interrupted sutures, the fascia by chromic catgut.

The fascia was brought together with a continuous suture of number *one* chromic gut, supposed to last for ten days.

The skin was coapted with a continuous suture of black silk.

The patient's recovery was even and athermic.

The skin sutures were removed on the *fifth* or *sixth* day, as customary, the skin being reinforced by thin strips of adhesive plaster. The safety silk-worm gut sutures were removed on the *ninth* day.

\* Read at the annual meeting of the Medical Society of the State of New York, January 26, 1910.

On the morning of the *twelfth* day after the operation the wound appeared to be in excellent condition. The patient had, however, contracted a sharp cold. During the early evening following my morning visit, I was summoned with the statement that the patient was in collapse after a fit of coughing and sneezing.

I found on arriving that she was in considerable shock and a temperature of 101°.

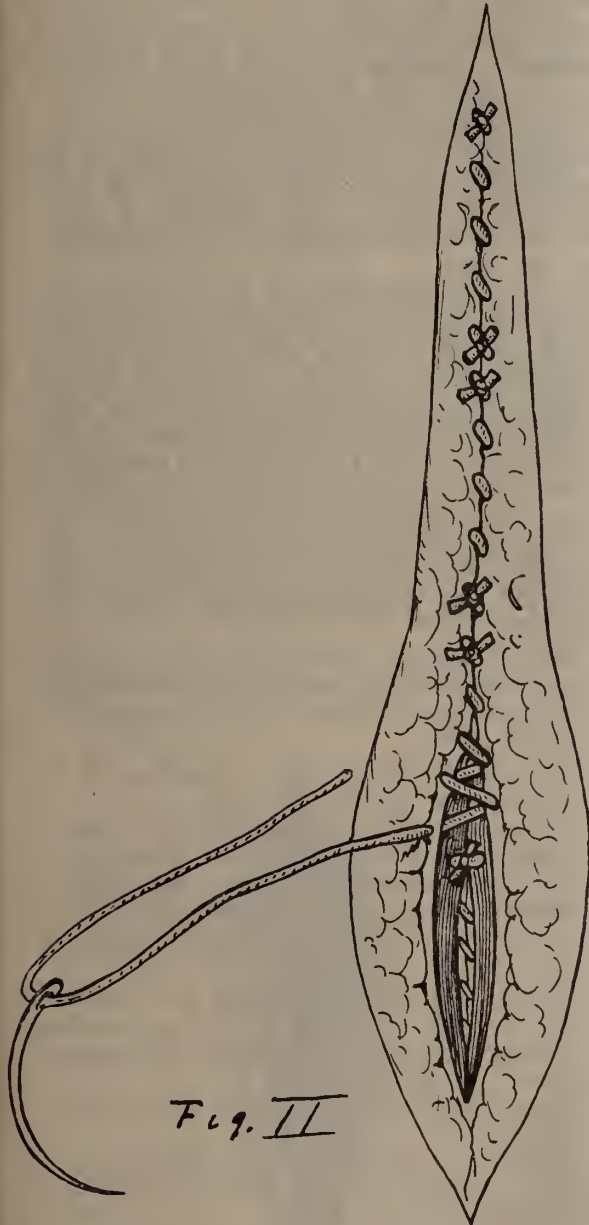


Fig. II

FIG. II.—Shows the closing of the fascia by frequently interrupted chromic catgut sutures.

On lifting the dressings, loops of small intestines were seen protruding from the separated wound.

The patient was transferred to the operating room, the abdominal contents were returned and the wound was reclosed with through and through sutures of silk-worm gut.

She made a good recovery and has since had no hernia.

When the wound was examined after replacing the intestines, it was seen to have opened for its entire length. Inspection of the edges did not show any necrosis. The layers could not be clearly differentiated, the location of the fascia was, however, plainly marked by broken loops of chromic gut.

This occurrence, while the first of its kind in my individual work, is by no means confined to a few cases. It has occurred from the beginning of laparotomy and continues to occur to-day. There is hardly a surgeon who cannot recall a similar occurrence in his own practice. It is but human to report our successes, and to put aside those associated with disagreeable sequelæ.

Madelung\* collected 157 cases of rupture of the abdominal wound with escape of intestines. Of these 144 were from literature and thirteen from the practice of himself and that of his friends.

Ries,† in a late, excellent paper on this subject, reports three cases of his own. In the discussion following his paper, several speakers reported similar occurrences in their practice.

On inquiry among my immediate friends, each state that they have had a similar experience and in some instances more than one.

On first thought the explanation of the rupture of the wound is simple, namely, the pressure from within suddenly applied as resulting from sneezing, coughing, vomiting, or straining at stool; and secondly, a defective or too quickly absorbed suture.

In the large majority of the cases this is probably the proper explanation.

Madelung in his collection of cases, found that in *fifty-one* instances the operators attributed the rupture to coughing. In *twenty-four* of these the separation actually took place during a coughing spasm. Persistent vomiting was present in *ten* cases, while in *fifteen* the wound opened directly after the act of vomiting.

*Sutures.*—In *twenty-three* of his collected cases the wound had been brought together in layers, with catgut. In *twenty-eight*, silk, silk-worm gut, and silver had been used in approximating the layers. In seven cases, through and through sutures had been used.

In wounds healing primarily, it is hardly conceivable that rupture can take place except through a *sudden* force applied from within, against the edges in process of uniting and insecurely held by sutures.

No cases have been reported as resulting from abdominal distention alone, or in other words, from continued pressure.

We have vomiting as almost a constant at-

\* *Archiv für Chirurgie*, Volume LXXVII.

† *American Journal of Obstetrics*, October, 1909.

tendant within the first few days after laparotomies, yet do not have rupture of the wound.

The rupture, when it does occur, is at a period coincident with the loss of support of the retaining sutures, and at a time when the strength of union of the coapted edges is insufficient to withstand the sudden force applied.

In two of Ries' cases, while still on the operating table and under vomiting attendant on the withdrawal of the anesthetic, a distinct *snapping* was audible. Reopening the wound at once the deeper layers were found separated for their entire length.

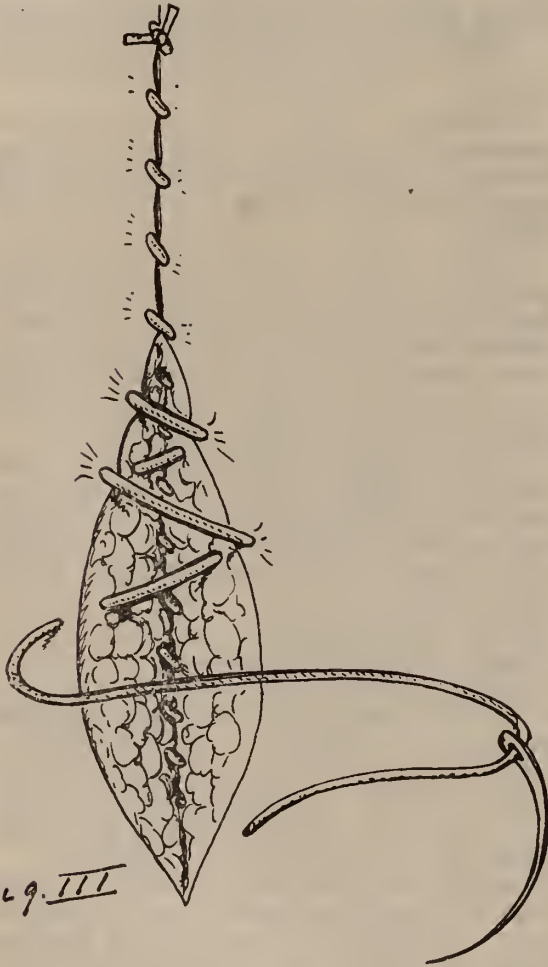


FIG. III.—Shows the fascia closed and the skin being brought together with a running suture of silk.

In one instance the peritoneum muscle and fascia had been brought together with a continuous suture of simple number 0 catgut. In the other, number 1 simple catgut was used as a continuous suture for the peritoneum and muscle, and number 2 continuous for the fascia.

Madelung, in the report of his collected cases, states that rupture took place

5 times on the day of the operation,

23 times from the 1st to 5th after the operation,

66 times from the 5th to 10th after the operation,

13 times on the 10th,

8 times on the 11th,

7 times on the 12th,

3 times on the 13th,

2 times on the 14th,

1 time on the 17th.

The larger number, forty-six cases, occurring between the seventh and ninth days, hence he regards this period as the *critical one*.

It is seen that under an exciting cause rupture takes place in the large majority of cases, at the time when the supporting sutures have lost their supporting powers by being dissolved or otherwise, or having been removed if of non-absorbable character.

To determine the length of time catgut would maintain its continuity within the abdominal wall I instituted the following experiments some two years ago: Before closing the abdominal wound, I passed a single strand of gut through the skin, fascia and muscle, leaving an end free on each side of the wound. The wound was then closed in the usual method by layers of number 1 catgut continuous for the peritoneum, a few number 2 interrupted for the muscle, and number 2 chromic, forty day, continuous for the fascia, the skin being brought together by black silk.

The wound was dressed every other day, at which time the free ends of the experimental strand were gently pulled on to the point of giving slight pain.

The time elapsing before the breaking of the strands was as follows:

Number one, plain gut, average, four days;

Number one, plain gut, shortest, three days;

Number two, plain gut, average, eight days;

Number two, plain gut, shortest, seven days;

Number one, 10 day chromic gut, average 10 days;

Number one, 10 day chromic gut, shortest, 5 days;

Number two, 40 day chromic gut, average 12 days;

Number two, 40 day chromic gut, shortest, 9 days.

In each experiment the strands parted an inch or more below the skin and uniformly had dwindled to a narrow thread.

The supporting power of plain number two gut is seen to be at a minimum about the *seventh* or *eighth* day, the period of most frequent rupture. That of chromic number two gut is longer, lasting for about twelve days.

In tying catgut the tendency of the knots to become loosened is well known, as is also the importance of not cutting the free ends too close.

Madelung has shown that rupture has oc-

curred more frequently following the use of buried, non-absorbable sutures, as silk, silk-worm gut and wire, than after catgut.

Brettauer reports an instance in which the silk-worm gut knots had become loosened.

I believe, however, that in these instances the true reason for the loss of support following the use of these non-absorbable sutures is the tightness with which they are tied and the subsequent cutting through of the enclosed tissues by the sutures. This cutting through process we know would be about completed somewhere between the seventh to the tenth day.

Ries in his summation of the possible causes, also speaks of the tearing of the fascia between the stitch holes and the main part of the fascia as in the perforated edge of a postage stamp.

This is evidently rare, and the result of too close application of sutures.

In general, the complete separation of the wound must commence *first*, by the separation in part of the deeper layers, as a result either of the occasional *snapping* of the retaining sutures as advanced by Ries, or by their absorption, or cutting through, or a possible untying of the knots. The separation once commenced is completed by the pushing up of the intestines, acting in the manner of a wedge.

At a *later time*, whether within a few hours or days, the skin union separates permitting the escape of the coils of intestines. If the skin does not give way we have the resulting ventral hernia.

*Suture of the wound.*—It is the desire of all

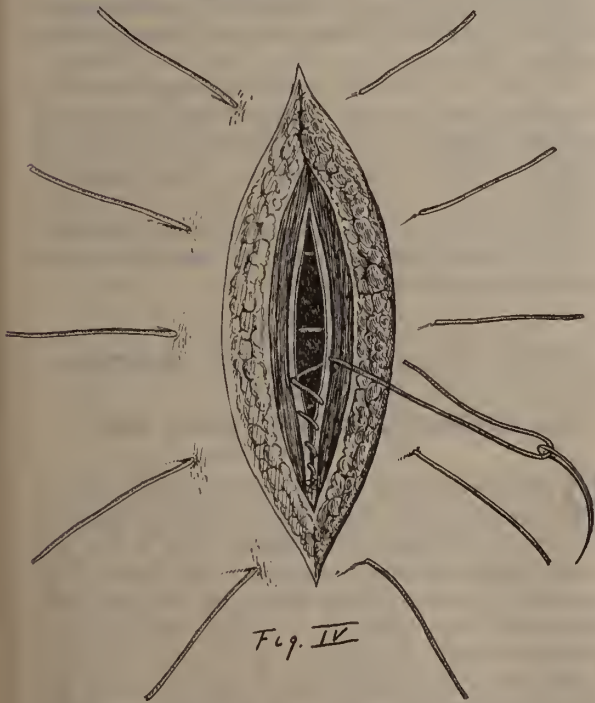


Fig. IV

FIG. IV.—Safety sutures of non-absorbable material introduced before the layers are coapted. These sutures include all layers and remain in for two weeks.

operators to have as small an amount of absorbable material in the wound to be taken care of as is consistent with safety. I have for many years given up the use of plain gut in the fascia and have uniformly used number two chromic gut. If this is running small, I use a number three in its place.

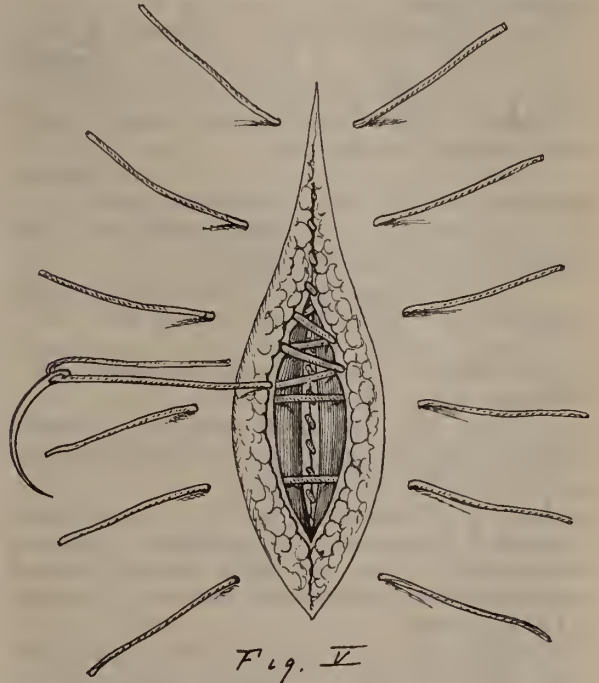


Fig. V

FIG. V.—Safety sutures only include the skin and fascial layer, frequently preferred to the method as in Fig. IV on account of the freedom from the danger of catching a loop of intestine between the suture and wall at the time of tying.

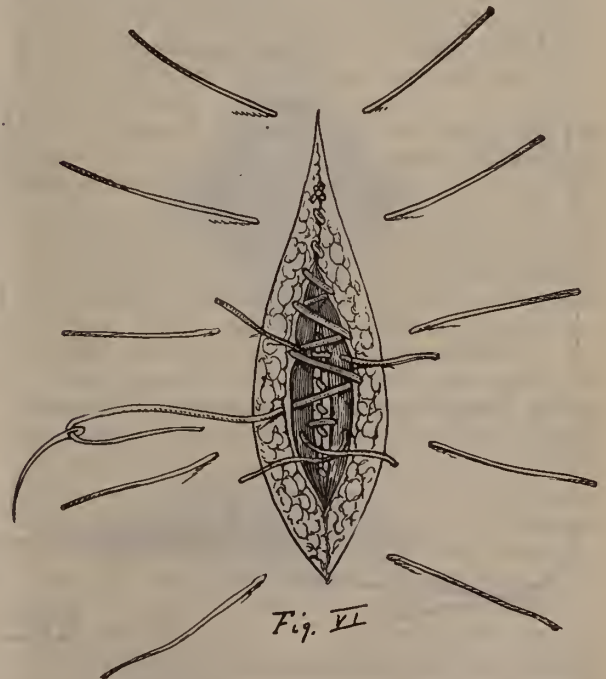


Fig. VI

FIG. VI.—Different layers are being approximated by sutures after the introduction of the safety sutures.

My custom is to bring the peritoneum together with a running suture of number one plain gut.

The muscle is coapted with a few sutures of interrupted number two plain gut.

In closing the fascia I have discarded the continuous suture, and use number two or three chromic gut, interrupted about every one and a quarter inches.

The interruption at short intervals gives us the practical value of the ordinary interrupted suture. It is also my habit to place a finger on the knot in order to prevent the assistant cutting the free ends too closely.

In introducing the fascial sutures, I think it of importance to take a liberal bite, not only on the fascia but also including a small part of the tissue immediately overlying it.

When the edge of the fascia alone is caught up there is a possibility of some of the sutures tearing or cutting out.

The skin is finally brought together with a running suture of silk.

I follow this plan in all ordinary operations, whether the incision is in the median line or after a Pfannenstiël incision.

*Lapping the Fascia.*—Under certain circumstances I believe this adds to the security of the wound. I have never felt, however, that it was necessary, excepting in hernias where it is of much value.

The cross or Pfannenstiël incision unquestionably adds much to the firmness and security of the wound. I use it frequently in clean cases, but regard that the dissection required renders it

unsafe in cases in which there is a possibility of wound infection.

The introduction of safety non-absorbable sutures including the skin fascia and part of the muscle adds to the security of the wound. These are not tied until all layers are sutured.

With anæmic patients in whom the reparative process of wound healing is slow, I feel it is of much importance that safety sutures should be used and left in for fully two weeks or longer.

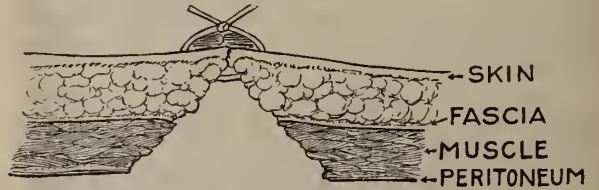


Fig. IX

FIG. IX.—(Amplified from Ries.) The separation of the deeper layers prior to the skin separation as a result of the rupture, or of the premature absorption of the coacting sutures of the deeper layers. This accident occurs most frequently between the seventh and ninth days after the closure of the wound, the result being either an escape of abdominal contents or a ventral hernia, depending on the strength of the skin union.

*Dressing.*—I think it important to apply a firm supporting dressing before the return of the patient to the bed. The one in use at the Woman's Hospital has proven very satisfactory.

The surgical dressing is covered by firmly applied three-inch adhesive strips, extending well over from the loin of one side to that of the other. The strips lap one another one-third and extend well above and below the line of incision. Over all is placed a snugly applied heavy muslin scultitus binder.

On the first dressing after the operation, the adhesive strips are cut down through the centre and laid back. This is facilitated by laying over the original dressing a sheet of gutta percha tissue.

The adhesive strips are not removed for two weeks, but tightly laced up by the nurse after each subsequent dressing.

### THE TREATMENT OF POTT'S DISEASE.\*

By BRAINERD H. WHITBECK, M.D.  
NEW YORK CITY.

POTT'S disease is a chronic osteitis of the bodies of the vertebra, essentially destructive in character. Taking place in the anterior weight-bearing portion of the spinal column this process causes the spine to give way anteriorly and gradually brings the spinous processes into prominence posteriorly. Associated with this steadily increasing deformity are pain, gradual pressure upon the various organs

\* Read at the annual meeting of the Medical Society of the State of New York, January 26, 1910.

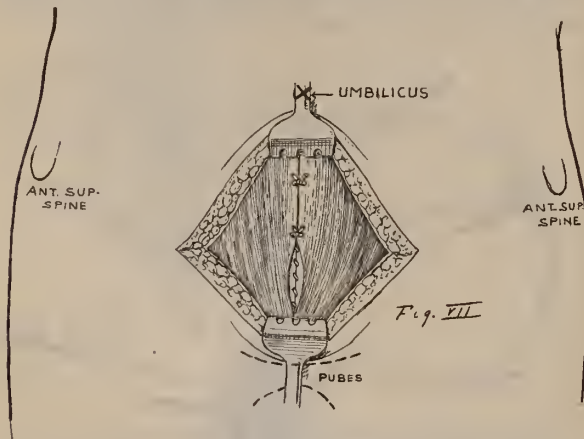


FIG. VII.—The Pfannenstiël incision. The peritoneum and muscle have been closed in the usual manner.



FIG. VIII.—The Pfannenstiël incision. The fascia is being closed by frequently interrupted chromic catgut sutures.

contained within the thorax or abdomen, the formation of abscesses as the result of bone destruction and paralysis due to pressure upon some portion of the spinal cord. Toward the prevention of these conditions, or their relief if they already exist, our treatment turns.

Disease of the spine is by far the most common of all the tuberculous conditions of bones and joints. The deformity and complications moreover, are far more reaching than in any other form of bone disease. Thus an early diagnosis of the condition existing and the prompt application of efficient treatment is all important.

Just at this point I desire to impress upon the general practitioner the very prominent position in which he stands in relation to this disease. One of the first symptoms of this condition may be pain and it is for this pain that the patient is brought to the physician. Only too often the condition is then called rheumatism and much valuable time is thereby lost and serious deformity may develop before the true diagnosis is determined upon. It is the duty of every physician to any such patient at the very first visit to realize that a serious condition may exist and therefore he should go thoroughly into the family history, strip the patient and examine carefully for stiffness, deformity, weakness or awkwardness in active movements and the effect upon the patient of passive movements. Frequent and careful subsequent examinations should be carried out if the first examination has not cleared up the diagnosis. Only after careful exclusion of other possible conditions should a diagnosis of rheumatism be made. By the failure to observe these rules marked deformity or disastrous complications may develop before the true condition is determined.

Immobilization at the earliest possible moment must be the foundation for the local treatment of tuberculosis of the spine. Various methods are used by different surgeons to accomplish this immobilization but, however it may be accomplished, it must be thorough and extensive. Far too often we see a child suffering from a well marked case of Pott's disease, perhaps complicated by paraplegia, supported only by an ill-fitting brace or a plaster paris jacket which barely covers the kyphosis and its most immediate adjoining vertebra and by no means supporting or fixing the spine.

Many surgeons use the steel spinal brace and feel that in their hands it serves the best purpose. Others use the plaster paris jacket for patients over three years of age, for those under three, the gas pipe frame bent so as to hyperextend the spine at the point of the disease. Those who advocate the brace urge that it is more cleanly, lighter and more easily readjusted from time to time. The writer is of that class which prefers the use of plaster paris—feeling as he does that if properly applied the jacket most effectually

immobilizes the spine and that he avoids the serious possibility, only too often experienced, of the patient or his friends removing the brace at home for a portion of the day. Then, too, the cheapness of the plaster paris jacket is greatly to its advantage in the treatment of the poor.

In the opinion of the writer recumbency by means of the gas pipe frame is the most efficient method of treatment under the following circumstances:

1. In children under three years of age;
2. In cases where there exists unilateral or bilateral psoas abscesses which are very deep seated;
3. Where there is flexion of either or both thighs as the result of psoas contraction;
4. Where there exist sinuses located at points which make it impossible to apply a jacket;
5. And lastly, where the Pott's disease is complicated by hip disease.

Up to about two years ago the ordinary plaster paris jacket was used for all cases where the disease was located in the lumbar or lower and middle dorsal regions and the jury mast incorporated into the jacket where the disease was situated in the upper dorsal and cervical regions. This form of treatment is still carried out by surgeons to-day and gives excellent satisfaction. However, about two years ago the Calot jacket was introduced into this country and the writer with others, has found that the results of its use are eminently superior to all other forms of treatment. He now employs the ordinary jacket only in those cases in which the disease is situated below the ninth dorsal vertebra and uncomplicated by weakness or paralysis in the lower extremities. For all cases where the disease is located above the tenth dorsal vertebra or where complications present the Calot jacket is used.

You are all doubtless familiar with the gas pipe frame and the ordinary plaster paris jacket and its accompanying jury mast and it is not necessary to enter into a description of these. Permit me only to emphasize the importance of carrying the jacket well up to the upper end of the sternum and down nearly to the symphysis pubis in front and up over the wings of the scapulæ and down over the sacrum behind.

Two forms of Calot jacket are used, the "grand" for disease above the seventh dorsal vertebra and those below this point complicated by paraplegia, and the "military" for disease from the seventh to the tenth and in those cases below the tenth with decided deformity. By means of this jacket the deformity may often be diminished but the most marked results are to be found in its application in those cases complicated by paraplegia. By no other means can this distressing condition be relieved so readily or so thoroughly.

The Calot jacket is applied in the erect posi-

tion, the patient suspended from above. Instead of the well known leather head sling Calot recommends a circular sling made of canvas 168 centimeters in circumference and 6 centimeters wide. To the circular portion is attached a tail piece 104 centimeters long. The circular portion fits under the chin and occiput, being fastened on either side of the head by safety pins and the loops above are hung over the cross bar. The tail piece is then carried up behind the occiput and attached also to the cross bar thus steadying the head. The patient is then pulled up until his heels are off the ground. The arms are held at an angle of 45 degrees with the patient's body. Before suspension the patient is supplied with two shirts, preferably of stockinette, made with quarter sleeves, and extending above to the chin and below to the knees. It is hardly necessary to add that the seams of the shirts should be on the outside. A large cotton pad is placed over the chest in front and pads of cornfelt over the shoulders, and over the buttocks extending to and in front of the anterior superior spine on either side. In the application of the military jacket an additional piece of cornfelt is sewed around the neck over the stockinette, and in the grand jacket squares of cornfelt are placed over the front of the neck over the chin to the lower lips and behind, covering the occiput and neck. These various pads are held in position by a few turns of a plaster paris bandage. Two aprons are now applied, front and back, cut out from four thicknesses of crinoline one and one-half times the length of the trunk and one-half the circumference in width thoroughly mixed with plaster cream. The posterior apron has a slit in its upper third to fit around the neck and each half is brought around in front under the axilla and the lower end of the apron covers the buttocks. The anterior apron is applied after the posterior, and extends from the neck to the symphysis, the extra portion below being turned up so as to add strength to the lower portion of the jacket. For the "military" jacket a collar of four thicknesses of crinoline, the height of the patient's neck in width and somewhat longer than the circumference and mixed with the plaster cream, is applied. In the "grand" jacket instead of the collar, squares of four thicknesses of crinoline are applied front and back, covering the neck from the chin to below the upper end of the sternum and behind covering the occiput. A series of plaster bandages now cover these aprons and great care should be exercised to rub in each turn of bandage to render the whole a homogeneous mass.

While the patient is still suspended the jacket is trimmed out. Below the jacket extends to the lower end of the sacrum behind and to just above the symphysis in front and cut out somewhat to allow of flexion of the thighs. Above in the "military" jacket the trimming is at the

junction of the neck and head. In the "grand" jacket the chin and occiput are included, dropping down somewhat under the ears. Over each shoulder the jacket is trimmed to allow of free use of the arms.

A large cone shaped area is now mapped out in front with the point upward and extending from below the umbilicus to about two inches below the upper end of the sternum in the "military" jacket, and to the thyroid cartilage in the "grand" jacket. The upper third of this area is entirely cut through, and the cotton beneath removed. The lower two-thirds is nearly cut through and left to be removed within twenty-four hours. A small area is also cut behind, two by four inches over the kyphosis, and after a few hours removed, the shirting cut and the skin covered with vaseline and several layers of cotton wadding somewhat larger than the opening are inserted, one at a time, and a final wad of cotton is applied, and the whole held in place by a few turns of plaster paris bandage. The shirting is finally turned up over the outside of the jacket and sewed so as to entirely cover it. The packing is removed every month.

The large opening in front diminishes the weight of the jacket and also allows the body to project forward when pressed from behind by the packing over the kyphosis.

The development of paraplegia in the course of the disease of the spine is a serious complication and the best efforts of the surgeon should be brought to bear to prevent its occurrence. In the majority of cases it is a late manifestation but it may also occur early in the disease, and indeed, may occasionally be the first sign of existing trouble. It is the result of compression of the spinal cord, and may take place by the giving way of the anterior portions of the bodies of the vertebra, the seat of disease, with marked deformity posteriorly, or it may result in disease of the posterior or middle portions of the bodies, from a gradual deposit of the products of necrosis with accompanying inflammation outside of the dura mater and the thickening of this membrane. Marked deformity may exist, however, for years, or perhaps through the course of disease without the occurrence of paraplegia as long as the pressure backward does not constrict the cord, and on the other hand, extensive paraplegia may take place with no apparent deformity.

Therefore the surgeon must realize that, aside from the prevention of deformity *per se* complete fixation of the spine at the earliest possible moment must be brought about in order to avoid the ever threatening complication of paraplegia.

Should the paraplegia exist it should be relieved as speedily and effectively as possible and by no means, in the opinion of the writer, can this be so thoroughly accomplished as by the Calot jacket. The following case will illustrate:



J. P., aged 30, a motorman, was admitted to Lincoln Hospital in February, 1909. Six years previous he developed pain in the back and gradually increasing deformity with a kyphosis at the fifth, sixth and seventh dorsal vertebra and a left dorsal and right lumbar rotary lateral curvature. He was treated by braces, corsets and ordinary jackets but two months previous to admission began to develop paraplegia which had steadily increased until he was unable to walk or stand. He was placed upon a frame for two months and his general condition improved, with slight improvement in the paraplegia. The latter part of April the first Calot jacket with military collar was applied and several jackets have been applied to date at intervals of six weeks or two months. The improvement has been marked. His height has been increased about two inches. The rotary lateral curvature has nearly disappeared and he has been walking about the ward and in the yard for several months with only a slight degree of paraplegia now remaining.

A psoas abscess may develop at any stage of the disease depending upon the existence of tissue destruction. If the abscess is small and situated well up it may be recognized with difficulty and may disappear spontaneously. If, however, it is low down and large in size it will, in a large percentage of cases, make its way downward under Poupart's ligament, and point on the thigh or backward into the gluteal region. Infection is apt to take place and experience has shown that such a condition all too frequently brings about the death of the patient in a shorter or longer space of time.

When the abscess is of the small variety the patient should be placed upon a gas pipe frame and kept there in the hope that absorption of the abscess will take place. If, however, the abscess is large, and low down in either iliac fossa, the following method has been employed with eminent success in a number of cases. Having rendered the skin over the abscess aseptic, a point just below and internal to the anterior superior spine is chosen and a trochar is inserted under cocaine in the direction of the abscess. The contents are then aspirated and then through the cannula eight to ten cubic centimeters of a mixture of

Olive Oil .....	50
Ether .....	50
Creosote .....	2
Iodoform .....	5

is injected by means of a long needle, attached to a glass syringe. A sterile dressing is then applied. This process should be repeated at intervals of from ten days to two weeks until the abscess no longer exists.

The following case will illustrate not only the treatment of large psoas abscesses, but also the marked success in the use of the Calot jacket

for existing paraplegia: A. C., 7 years old, was admitted to Sea Breeze Hospital, at Coney Island, on March 15, 1907, in a very unfavorable condition. She had been treated with ordinary jackets for about one year. Shortly before admission a large right psoas abscess had appeared low down in the iliac fossa. On admission she was weak, thin and very pale and a steadily progressing paraplegia rendered her gait very unsteady. She was immediately placed upon a gas pipe frame. Soon after admission a large abscess appeared in the left iliac fossa. During the next eighteen months her general condition improved decidedly but the abscesses still remained exactly the same size; in fact, the right one was somewhat larger, and the paraplegia had only moderately improved.

September 10, 1908—Right abscess aspirated under cocaine, 100 c.c. of thick pus removed and 8 c.c. of the mixture of iodoform, ether, olive oil and creosote injected. Left abscess aspirated and 50 c.c. removed and 8 c.c. of mixture injected.

September 19, 1908—65 c.c. pus removed from right abscess and 8 c.c. of mixture injected.

October 18, 1908—175 c.c. of pus removed from right abscess and 75 c.c. from the left and 7 c.c. of the mixture injected into each.

November 8, 1908—275 c.c. of pus removed from right abscess and 75 c.c. of pus removed from the left abscess and 7 c.c. of mixture injected into each.

November 25, 1908—Small amount of dark brown fluid removed from left abscess.

November 29, 1908—No sign of either abscess. Calot jacket, military collar applied.

December 20, 1909—Child walking well and still no sign of abscess.

From this time on the child gained steadily in weight and physical condition and she has just left the hospital a robust girl, fleshy, rosy-cheeked, and to all appearances a cured case of Pott's disease with but a slight deformity to bear evidence of a once apparently doomed child.

All surgeons dread the tuberculous sinuses, knowing full well the long and tedious course which they run; extending in some cases over many years and taxing the patient's strength to the utmost. moreover, the danger of infection ever hovers over these cases and the result of such infection, ultimate death, is all too well known. Various methods have been employed by surgeons in their efforts to close these sinuses but the condition has remained in a large proportion of cases defying all intervention. Curettement of the sinuses and scraping of bone have been extensively employed but with very doubtful success and often causing harm by setting up new areas for the spread of infection.

The introduction, by Emil Beck, of Chicago, of his bismuth paste for injection into the sinuses has been received with varying degrees of enthusiasm and with different degrees of success.

Many surgeons feel that it is an unwise procedure to attempt to introduce any foreign substance into such a sinus for fear of interfering with nature's method of dispelling the disease.

The writer took up the use of the paste about fifteen months ago and has used it in a goodly number of cases. Following Beck in the use of his first mixture of

Bismuth .....	6.
Vaseline .....	12.
White Wax .....	1.
Paraffine .....	1.

the writer found, that although in a fair proportion of cases the diminution of the discharge was gradual and accompanied by no untoward effects, in a few cases the discharge suddenly ceased and the patient showed distinct signs of absorption with fever, nausea and vomiting and pain at some point along the course of the sinus. When after a few days the pus made its way out through the old opening or by a new channel the symptoms disappeared. About a year ago Dr. Beck informed the writer that he had found that a mixture of one-third bismuth subnitrate and two-thirds vaseline, leaving out the paraffine and wax, was better for the usual injection. For the past year, therefore, the writer has used only the latter mixture with encouraging success. In very few cases has the discharge become stopped off suddenly and caused absorptive symptoms and these have been very slight and soon relieved. As a rule the diminution in the discharge has been gradual but decided, and in a number of cases, complete closure of the sinus has taken place.

There is one point which seems to the writer to have an important bearing on the rapidity of improvement in this procedure and that is the length of time the sinus has existed before beginning the use of the paste. If the sinuses have been discharging over a period of years, even if the discharge is free, the diminution in the amount of discharge is more rapid from the first and the sinuses close with greater rapidity and far less tendency to form new sinuses. Whereas if the abscesses have only recently opened and are discharging very freely of thick creamy pus, use of the paste appears to be of no avail possibly for a few months, and then progress becomes noticeable and the case goes on to heal as the more advanced cases do.

It is well for the surgeon to bear this point in mind and not to be discouraged in those cases of recent sinus formation if the progress is slow at first. Moreover, he should not give up the treatment if, during the course of injections, one or two fresh openings appear, but should continue the treatment in all the sinuses until they remain closed.

Of hardly minor importance to the local treatment is the hygienic. We must always bear in

mind that we are dealing with a disease, the local improvement of which is very decidedly dependent on the constitutional condition. Therefore the patient must be placed in the best possible hygienic surroundings. Fresh air in full doses, extending over the whole twenty-four hours, good food and sunshine must be supplied. This theory has become a successful practice at many seaside and country sanatoria in this country and abroad and prominent among these is the Sea Breeze Hospital at Coney Island, the first seaside institution open the year round, in this country.

The duration of treatment in Pott's disease depends upon its location and extent. Even in disease high up, presenting little or no deformity, at least two years of constant fixation should be the rule. In disease of the dorsal and lumbar regions uncomplicated four or five years are required. Of course, the cases with no deformity would require support for a shorter time than those with deformity, for in the latter cases the deformity often shows a tendency to increase even years after the disease has become quiescent. It is therefore wise to continue the support for several months after all signs of disease disappear and then to leave off the brace or jacket at night first and then for a part of the day. A good indication for removing support is the disappearance of muscular spasm. This condition is the last symptom to disappear. Even after several years of apparent cure recurrences sometimes take place.

## THE INDICATIONS FOR AND THE TECHNIQUE OF THE OPERATIONS FOR THE INDUCTION OF LABOR, PERSISTENT OCCIPITO-POSTERIOR POSITIONS, AND CRANIOTOMY.\*

By GEORGE L. BRODHEAD, M.D.

**I**N presenting my paper for the consideration of a society of men, many of whom are in general practice, it is my purpose to emphasize the importance of several operations with which many of you are already thoroughly familiar. As a matter of common knowledge, however, although the indications would seem to be clear, these operations are frequently overlooked and, in many cases, loss of life to mother or child results.

*Induction of Labor.*—The indications for the interruption of pregnancy in the latter months are:

1. General diseases, such as tuberculosis, nephritis, endocarditis, etc.
2. Toxemia, albuminuria and eclampsia.
3. Pelvic contraction, absolute or relative.
4. Fetal death, followed by symptoms of sepsis.

\* Read before the Fairfield County (Connecticut) Medical Society, April 12, 1910, and the Schenectady County Medical Society, April 26, 1910.

5. History of the death of the fetus in a former pregnancy, at or near full term.

6. Hydramnion, with urgent pulmonary or cardiac symptoms.

7. Placenta previa.

8. Accidental hemorrhage.

It will be readily apparent, after a consideration of the many indications already noted, that the method to be employed must of necessity depend upon the conditions present in, and the urgency of the symptoms of each case. For example, the induction of labor in a case of deformed pelvis would necessarily involve the use of a method radically different from that which would be applicable to a case of placenta previa, bleeding furiously. Although from time to time many procedures have been advocated, we have at the present time four methods of operation, on one or the other of which we usually rely. These are the following: 1. Krause's method, consisting of the use of bougies; 2. Gauze tamponade; 3. Manual or digital dilatation of the cervix; and 4. The use of the dilating bags of Champétier de Ribes, and Pomeroy.

The introduction of the bougie is thought by many to be the best means of inducing labor in cases where there is no necessity of haste, and, in justice to this procedure, it may be said that, when the bougie can be introduced without accidental rupture of the membranes, a valuable method is afforded of exciting labor pains. Unfortunately, the method in my hands, as well as in those of many of my colleagues, has often resulted in the accidental rupture of the amniotic sac, with consequent dry labor and increased difficulty in intrauterine manipulations.

*Technique of the Operation.*—The technique of the operation is as follows: The genitals are prepared as for any operation and a douche of warm lysol solution is given. Except in primiparæ, when instrumental dilatation is required, it is rarely necessary to use an anæsthetic. The cervix is then exposed, and by inspection a sterile bougie, or small rectal tube, is carefully introduced between the membranes and uterine wall. If resistance is met with at any point the tube is withdrawn slightly and an attempt made to carry it upward in another direction. One or more bougies or tubes can be used, depending upon the urgency of the case. The end of the instrument can be pushed upward through the internal os and retained in position by a gauze tampon. If labor has not been induced at the end of twelve or eighteen hours another tube can be introduced. The method, in my hands, has been most unsatisfactory and for years I have not used it, having abandoned it in favor of hydrostatic dilators.

2. The use of the gauze tampon is highly commended by men of large experience, but except in the presence of placenta previa with an undilated cervix, I have never resorted to this method. I would not hesitate to use it, how-

ever, in any emergency where bags were not available.

3. Manual or digital dilatation of the cervix should be used only in case of hemorrhage which is so profuse as to require speedy delivery. Even when it is necessary to dilate the cervix hastily, in order to perform a podalic version for profuse bleeding in placenta previa, it is better to allow nature to complete delivery, with perhaps a little assistance from time to time by slight traction upon the foot.

I have seen at least two deaths from rupture of the uterus resulting directly from rapid dilatation of the cervix in placenta previa. The children were saved by rapid dilatation; but the mothers were sacrificed in the interest of the children. In placenta previa the lower uterine segment is very soft and tears very easily. After version, therefore, in the presence of an undilated cervix, slow extraction of the child is absolutely essential in the best interest of the patient.

4. During the past ten years I have relied almost entirely upon the use of the modified Champétier de Ribes bag, not only for the induction of labor, but for accelerating it as well. These bags, five in number, are conical in shape, made of canvas, covered with rubber, and the stem, through which fluid is injected into the bag, is very strongly fastened to the apex of the bag, making it possible to make moderate traction, if this is thought advisable. Anæsthesia is usually unnecessary and one rarely ruptures the membranes in introducing the bags.

In my experience I have never seen a malpresentation caused by the introduction of the bag, but in two cases the cord came down, requiring podalic version, with no mortality. After an extensive use of the bags, I am convinced that we have in them a most desirable method of inducing labor, and one which, as a rule, is attended with satisfactory results. They have given so much satisfaction that I use them almost exclusively. The technique is simple. The usual preparations for labor having been made, a 1 per cent. lysol vaginal douche is given and the cervix is dilated with the finger, or a steel dilator, preparatory to the introduction of one of the bags, the size depending upon the amount of dilatation of the cervix. The bag is first tested, then rolled up and seized with a Champétier de Ribes forceps (or with an ordinary uterine dressing forceps), and carefully passed into the cervix, either by inspection or vaginal touch, after which the bag is slowly filled with a sterile solution of lysol or normal salt solution. For this purpose the writer has devised a glass syringe, having a rubber plunger, but the ordinary Davidson syringe may be used. The glass syringes are of two sizes, two and one-half and four and one-half ounces, and, easily sterilized by boiling, have proven generally useful. When the bag has been completely filled, the stem is

clamped and tied. If there is no need of haste traction is not made upon the bag, but if it is desired that the dilatation be performed quickly, traction is made at intervals of fifteen minutes.

The bag will soften and dilate the cervix, and if, when the first bag slips through the cervix, labor has not yet begun, a larger bag is introduced. Labor usually commences within a few hours after the introduction of the first or second bag. In some few instances the cervix can be dilated almost completely with the bags, without provoking hard expulsive contractions, but in these patients, the membranes may be ruptured, and if necessary, the delivery completed by forceps or version.

5. Pomeroy has invented a set of bags which makes a most important addition to the means at our disposal for mechanical dilation of the cervix. These bags are intended to compete with digital dilation in selected cases of eclampsia, placenta previa, accidental hemorrhage, etc., dilation being performed in a gradual manner, with less danger of tearing than with manual dilatation. The bags are of three sizes, each bag consisting of two compartments, the upper and smaller of which is known as the anchor bag. This is introduced into the cervix, under anesthesia, and is slowly filled, after which the larger or vaginal bag is slowly distended with fluid. When the cervix has been dilated to the full size of the small bag, a larger bag is introduced, and when the cervix has been completely dilated the patient is delivered by forceps or version. Pomeroy in a personal communication says, "that the field of usefulness of the apparatus is chiefly in certain cases of placenta previa, to safely accomplish dilation to a point facilitating podalic version, and in certain cases of dry labor with unengaged head or malpresentation. The apparatus is, in his opinion, the most effective mechanical cervical dilator in existence."

*Persistent Occipito-Posterior Positions.*—This class of cases is one demanding judgment, experience and good obstetric technique. Where the head is movable above the brim three plans of treatment may be considered; first, the application of forceps to the head in occipito-posterior positions; second, manual rotation of the head, followed by forceps, and third, podalic version.

In the choice of operation, by one who has had little operative experience, it is my belief that where the head is above the brim, and where there is still amniotic fluid present, version is a safer operation for the *mother* than the high forceps operation, but it is equally true that the *fetal* mortality in version will be greater than by the forceps operation properly performed. With reference to the internal manual rotation of the occiput forward, prior to the application of forceps, it can be said that in the hands of men accustomed to intrauterine manipulation the occiput can, in some instances, be rotated anteriorly, but in many cases, especially those in which the

membranes have been ruptured for many hours, the operation is difficult, and in cases where the head is firmly grasped by the lower segment of the uterus, which may have been thinned by protracted labor, even dangerous. In the latter class of cases, forceps carefully used would be safer than version, even in the hands of men of comparatively small experience. For operators of considerable experience, possessed of the proper knowledge of the technique of the high forceps operation, the following plan seems to me the best for both mother and child.

Under deep anesthesia an attempt should first be made to rotate the occiput to the front by the introduction of the hand into the uterine cavity. Failing in this, the forceps should be applied to the sides of the head in the posterior position, and the head should be brought down and extracted in a manner which will be outlined later. The high forceps operation is always to be undertaken with a proper appreciation of its difficulties and dangers. Nevertheless, in careful hands, I believe that the forceps, in posterior as well as in anterior positions above the brim, will give better results than version as far as the child is concerned, and results equally good for the mother. Failing to deliver by forceps, the child being alive, version must be tried. Whether, however, in this class of cases, version is the usual *elective* operation or not, I believe that when there is little amniotic fluid left, and the uterus is tightly contracted about the fetus, the careful, tentative use of the forceps is much safer than podalic version. Very little difficulty may be experienced with forceps, whereas version may result in a rupture of the uterus, an accident which occurs not infrequently.

The treatment of the second class of cases, in which the vertex is engaged in the brim of the pelvis, is much less debatable than the treatment of cases where the head is above the brim. We agree with the majority of operators that the forceps should be used to bring the head down slowly and carefully to the pelvic floor. If rotation occurs naturally and the position becomes anterior, the difficulty has been overcome, but if the position remains posterior, treatment should be carried out as indicated in the consideration of the next class of cases.

The treatment of the third class of cases, with the head in the pelvic cavity, may be, first, rotation of the occiput to the front by forceps; second, manual rotation, and third, delivery by forceps, the occiput remaining posterior. In multiparæ, where the soft parts have been thoroughly stretched, and where the head is of average size, the forceps may be applied and the head extracted in occiput-posterior position. In primiparæ, on the other hand, or in multiparæ where the soft parts are not relaxed, or where the head is large, the rotation of the occiput forward is highly desirable, for it is easier, as a rule,

to extract the head with the occiput to the front, and there is less danger of extensive laceration of the soft parts. Then, again, in some instances, it seems almost impossible to extract the head with the occiput posterior, and rotation by some method is imperative. Several years ago I was called to perform craniotomy in the case of a primipara with a dead child, where the head in the pelvic cavity could not be extracted in the posterior position. Manual rotation has repeatedly been used successfully and, indeed, pressure upward upon the forehead, to increase flexion, has frequently caused rotation. Imperfect flexion is often responsible for the failure to rotate, and pressure upon the forehead tends to bring the occiput lower down, so that the pelvic floor may act upon it favorably, rotating it to the front. In the treatment of these persistent occipito-posterior positions, with the head in the pelvic cavity, I have used instrumental rotation as a routine procedure.

The conditions which should be fulfilled before the operation of rotation is undertaken are these: (1) The head should be as well flexed as possible; (2) the vertex should be well down in the pelvis and preferably at the vulvar outlet; (3) the membranes must be ruptured; (4) the cervix should be fully dilated or dilatable; (5) the bladder and rectum should be empty; (6) last, but not least, the operator should be positive of his diagnosis of position. The genitals are prepared in the usual manner, but no vaginal douche is given unless there have been frequent examinations, unless the vagina is dry, or there is reason to suspect infection from careless examination. Wherever it is possible the patient should be placed upon a table, otherwise the buttocks should be brought to the edge of the bed. The legs are held up with leg holders, a sheet, or by assistants, and light chloroform anesthesia used. For the operation of rotation and subsequent extraction I have invariably used the Tucker solid-bladed forceps, an instrument which I believe is superior to any other for a number of reasons. The head, which is frequently moulded to an extreme degree, often fits the pelvis so tightly that it is difficult to introduce a fenestrated blade. The same difficulty is experienced in removing the blades, preparatory to a reapplication, after rotation is accomplished. The solid blades are more easily introduced, more easily applied to the sides of the child's head, are removed with greater ease, and finally, mark the child less than others. The forceps, after sterilization, is immersed in a 1 per cent. lysol solution, which answers admirably as a lubricant. The blades are introduced laterally at the sides of the pelvis, each blade being rotated so as to occupy a position at the side of the head, after which the forceps is locked. I believe that it is safer to apply the forceps in the usual manner (the concavity of the pelvic curve looking forward) than to attempt the rotation with the forceps in the in-

verted position, but in the hands of an expert, the latter method may be safely used. One of the great objections to rotation with forceps has been the danger of laceration of the soft parts with the tips of the blades. Laceration would surely occur if rotation were to be made with the handles of the forceps held in the median line, but this can be easily avoided by careful attention to the details of the operation as they are given below.

Straight blades would perhaps be preferable for the purpose of rotation alone, but with care one can get results just as good with the curved instrument. By carrying the handles of the forceps toward the thigh of the patient toward which the concavity of the pelvic curve looks—or, in simpler words, toward the right side of the operator if the position is right occipito-posterior, and the left side, if the position is left occipito-posterior—the blades become for all practical purposes straight blades.

Two fingers of one hand of the operator are placed upon the sagittal suture, and kept there during the operation in order to note whether the head is turning *with* the blades, or whether the blades alone are being rotated. The handles of the forceps are seized with the other hand and the blades held firmly against the sides of the child's head. The fingers of one hand being kept in position on the sagittal suture, the head is rotated during a contraction from the posterior to a transverse position, or until the concavity of the pelvic curve faces the lateral wall of the pelvis. The head is then held in the transverse position for a few moments, until several contractions and relaxations of the uterus have taken place. During the relaxed periods the body of the child will usually adapt itself to the position of the head—in other words, the back rotates forward. The head is then rotated to the right occipito-anterior or left occipito-anterior position, as the case may be, by rotating the handles, at the same time carrying the handles still further backward and downward. By so doing the tips of the blades are kept constantly in the middle of the pelvis and therefore cannot lacerate the vagina. The head is held in the oblique anterior position for several moments more, in order to allow the body to rotate anteriorly to accommodate itself to the position in which the head is held. The rotation of the body can be verified by palpation and auscultation, and by the fact that after removal of the blades the position will remain anterior.

After such a rotation it is surprising to note the advance which often takes place immediately after the occiput has come to the front, and indeed, in many cases, when the head has been turned to the transverse position, the rest of the rotation is spontaneous and delivery is easily completed. After the rotation and removal of the forceps the delivery may be left to the natural forces, but as a rule it is better to reapply the

blades and complete the operation in the usual way. If rotation takes place easily, as it generally does, much has been gained, especially in the primipara; but if the rotation cannot be accomplished except by the use of force, the head should be extracted in the posterior position, the forehead being brought down under the pubic arch, and the head made to advance by using traction in such a way as to cause flexion. When it is evident that delivery can be completed by the natural forces the blades are removed and the rest of the delivery completed in the usual manner.

Let me emphasize the great importance of a thorough examination to determine the precise position of the head before any forceps operation is undertaken, and again, the most favorable conditions for successful forceps rotation, viz., the well flexed head, the low position of the vertex, and careful attention to the technique of the operation, as described.

*Craniotomy* is an operation for which I wish to make a strong appeal, not as a procedure to compete with Cesarean section, but in the class of cases where the child is dead or dying, and where craniotomy offers the easiest and best method of delivery. The indications are more numerous than one would at first suppose, and include all conditions in which the child is dead, and where difficulty is experienced in extraction either by forceps or version. Take, for example, the case of a primipara, who has been exhausted by a long, dry labor, the cervix being partially dilated and the head just above or slightly engaged in the pelvic brim. The forceps operation is frequently first attempted, and failing in this, version is usually tried. In such a case, when the attempt to extract with forceps fails, and if the child is dead, craniotomy should be the operation of choice rather than version, and indeed craniotomy would be preferable to a difficult forceps operation. If the child is still alive, version may be tried, but failing in the effort to turn easily, craniotomy should be done. Again, take the case of a patient who, when first seen, shows a pulseless prolapsed cord. If labor has been protracted, and especially if the cervix is not dilated, craniotomy is the quickest and safest operation.

In breech extraction we know that, unless the child's mouth can be brought out of the vagina within five minutes after the birth of the navel, the death of the child is almost certain. Yet how often we see desperate efforts made to extract the head, even though the fact of the child's death is known, when craniotomy would be so much simpler and better. In an eclamptic patient, with a partially dilated cervix and a dead fetus, the operation of craniotomy is certainly the best method of procedure. It will be apparent to all, I think, upon careful deliberation, that craniotomy should be kept in mind as a valuable procedure, not as an operation to be resorted to only in extreme cases where nothing else can

possibly be done. Rupture of the uterus frequently follows desperate efforts to deliver by forceps and version, and in many cases the child is known to be dead. The operation is frequently far easier than a forceps operation, and one who considers himself competent to do the forceps operation need not fear for one moment to do craniotomy.

The technique of the operation is comparatively simple. After the usual preparations have been made the head is steadied by an assistant and the perforator of the Tarnier basiotribe, which seems to me to be far superior to any other instrument, is passed through a suture or fontanelle, and the brain substance is broken up. The right and left blades of the instrument are introduced and applied as ordinary forceps blades. By gradual compression the head is slowly crushed, then turned until the long crushed diameter occupies the transverse diameter of the pelvis, after which it is carefully extracted. If the Braun cranioclast is used, the perforation is made with a Smellie scissors, the solid blade is passed within the skull and the fenestrated blade is applied over the convexity, after which the blades are screwed together and the head extracted. In face presentation, the orbit may be perforated, while in breech presentation, the body is held up and the head is perforated through the occipital bone, or through the lower jaw and base of the skull.

After the head has been extracted the instrument is kept in position on the head in order to facilitate the extraction of the shoulders and body. In closing, I make a strong appeal for the more frequent use of craniotomy, which will, I feel sure, save the lives of many women who would, by any other procedure, be sacrificed.

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### THE CAUSES OF DEATH FROM SHOCK BY COMMERCIAL ELECTRIC CUR- RENTS, AND THE TREATMENT OF THE SAME.\*

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**W**ITH the present widespread use of electricity in almost all manner of human activities, serious and often fatal accidental shocks are of frequent occurrence. The question, therefore, of the best means to be employed in the resuscitation of individuals suffering from the effects of accidental shock is one of decided practical importance.

Certain recent discoveries concerning the pos-

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sibility of resuscitation after nominal death from other causes, together with the development of practical forms of apparatus for maintaining artificial respiration over indefinite periods of time, have made it seem to the writers worth while to systematize the available knowledge concerning the effects which follow, and the causes of death which results from the application of commercial electric currents and to formulate as far as possible a rational procedure to be carried out in cases of injury by electric shock.

Throughout this paper we have used the term "commercial current" referring to circuits in which the energy is such as is used in ordinary commercial work. The actual amount of current passing through the body varies so much in individual experiments, depending on the resistance of the animal and the character of the contact, that it has been found impractical to attempt detailed ampere readings. Suffice it to say that throughout this paper it is to be understood that the circuits referred to are not of a low energy source such as galvanic cells, but that a current of up to at least ten amperes may be sustained without an appreciable drop in voltage. In the conclusions reached it may be assumed that the current varies anywhere between one-half and ten or more amperes, depending upon and varying with the resistance of the subject.

Any rational method of resuscitation must be based directly upon a knowledge of the physiology of death from electric currents. This knowledge is in its main aspects readily ascertainable by direct experiments upon animals, controlled as far as possible as regards man, by clinical observations in cases of accidental shock, and by observations made at the time of the electrocution of criminals.

The extensive and accurate researches of Prevost and Battelli give us a fairly complete knowledge of the effects produced upon experimental animals by direct and alternating currents of varying potentials up to 4,800 volts. Previous to the work of Prevost and Battelli, investigators had arrived at widely different conclusions concerning the cause of death from electric shock; this was due to the fact that the chief cause of death varies with the current used, and that each of the individual investigators had, for the most part, used different currents in his investigations.

For the purposes of systematic study we may consider the lethal effects of electric currents under the following heads:

*First.*—*The actual destruction of tissues whereby they are so altered as to be no longer capable of performing their physiological functions.* This is often seen locally in the form of electric burns, and the well-known tendency for the tissues in the regions of these burns to slough far beyond the original visible limits of injury suggests the possibility of the widespread destruction of tissues by the currents. However,

these burning effects are seen only at the site of high resistance contacts and it is certain that the actual physiological destruction of tissue is of but exceptional occurrence and of minor importance as a cause of death.

*Second.*—*Interference with the action of the heart.* This is one of the most common causes of death by electricity, especially when relatively low tension currents are encountered. Electric currents passing through the heart tend to interfere with the normal rhythmic contractions of the heart muscle, and to throw it into a state of so-called fibrillary contractions, in which the individual muscle fibres or groups of fibres contract in an utterly uncoordinate manner, and thus absolutely interfere with the normal beating of the heart. The ventricles are particularly susceptible and a current as low as one volt when applied directly to the heart may be sufficient to induce fibrillary contractions.

*Third.*—*Arrest of respirations by paralysis of the nerve centres governing this function.* The central nervous system is highly susceptible to the influence of electric currents, more especially to the influence of the higher tension currents, and it is probable that the respiratory paralysis is the result of a profound anesthesia, comparable in many respects to that produced by overdoses of ether or chloroform.

Experimental investigations have shown beyond a doubt that fibrillary contractions of the heart and respiratory paralysis are the chief causes of death from electric shock. And, furthermore, experimental results seem to show a fairly definite relationship between the character of the current employed and the effects produced upon the heart and central nervous system.

There is considerable variation in different animals as regards their susceptibility to electric currents, and particularly as regards the susceptibility of the heart. Thus Prevost and Battelli found that alternating currents of low tension cause only temporary arrest of respiration, but that fibrillary contractions of the ventricles are induced. In dogs, these fibrillations always persist after the current is broken, so that once the fibrillary contractions have appeared it is impossible to resuscitate the animal. In guinea pigs and rabbits, the fibrillations may sometimes disappear and the animals recover, whereas in rats this latter result is invariably noted, the rat being apparently immune to low tension currents.

It is thus seen that the data obtained from animal experiments is not necessarily entirely applicable to man, and due allowance must be given for the variations in susceptibility, man being apparently quite immune to currents which are fatal to the dog. Clinical observations, however, seem to show that the cause of death in man is the same, namely, either respiratory or cardiac failure, and that while one animal may be more susceptible than another there is probably no essen-

tial difference as regards the fundamental effects produced by the different currents.

The writers in describing the effects produced by the different currents will follow closely the results obtained by Prevost and Battelli, who used the dog, rabbit, guinea pig and rat in their experiments. We will indicate possible corrections for man whenever data is obtainable on the subject.

#### DIRECT CURRENTS.

*Effect on the Heart.*—The effects produced by direct currents depend upon a number of factors such as the strength of the current, the duration of the contact and the course of the current through the body, and furthermore, the steady effect of the direct current is complicated by the sudden shocks due to the make and break of the current.

In dogs, fibrillary contractions of the heart may be produced by the shock at the break with currents as low as 70 volts, whereas with stronger currents neither the shock of make nor break is necessary to produce the fibrillary contractions, the heart entering upon the stage of fibrillation during the passage of the current. Indeed, at times, with currents of 400 to 550 volts the shock of break may serve to re-establish rhythmic contractions in a heart already in a state of fibrillation during the passage of the current; but if the shock of break of these stronger currents be suppressed by a gradual shutting down of the current, *e. g.*, by the use of a rheostat, the cardiac paralysis remains final.

Considerable variation is noted as regards the cardiac susceptibility of different animals, for, as stated above, a current of 70 volts may be sufficient to produce ventricular fibrillations in dogs, and except in the case of the higher potential currents, where the rhythm may be re-established on breaking the current, practically no tendency is seen toward a spontaneous re-establishment of heart action. On the contrary, in rabbits and guinea pigs, although even low tension currents produce fibrillary contractions, a well-marked tendency is seen in these animals for the heart to spontaneously re-establish its normal rhythm, and a few of the animals recover spontaneously unless respiratory paralysis is also present, in which case artificial respiration may be necessary to resuscitate the animal. With rats, spontaneous recovery of the cardiac rhythm is the rule, they being apparently almost immune to cardiac paralysis from direct currents up to 550 volts.

No accurate data is available concerning the behavior of the human heart under the influence of direct currents, but it seems altogether probable that ventricular fibrillations may exist at least during the passage of the higher tension currents, and that the failure to re-establish the normal cardiac rhythm is the cause of death in most fatal cases.

*Effect on the Nervous System.*—The effect of direct currents on the nervous system seems to be in direct proportion to the strength of the current used and the duration of the contact. Currents of low voltage (100 volts) produce little effect except the muscular contractions at the make and break. Higher currents (200-400 volts) produce tetanic muscular contractions, quickly followed, if the contact is prolonged, by a flaccid paralysis and respiratory failure; whereas with currents of still higher tension (550 volts), the anesthesia of the nervous system may be produced so promptly as to show no tetany, respiratory failure from paralysis being almost immediate under these conditions.

From a clinical viewpoint the writers believe that the effect produced by the higher tension currents on the central nervous system may be conceived as a state of anesthesia quite comparable to chloroform or ether narcosis, except that the respiratory centers are more promptly involved than in surgical narcosis. While possibly this conception may not be absolutely correct, it is of practical use in enabling one to make comparisons with the abundant clinical data concerning respiratory failure during surgical narcosis, and the researches of Robinovitch seem to show that electric anesthesia is quite definitely comparable to ether or chloroform anesthesia.

#### ALTERNATING CURRENTS.

The effects produced by the alternating current depend largely upon the tension of the current, the frequency of the cycles, the duration of the contact and the course of the current through the body. As a rule, low frequencies (25-150 cycles) are for a given strength of current more dangerous than higher frequencies (1,720 cycles). We have been unable to find any reliable data concerning the effects of variations in the curve of flow during the reversals of the current, but it is quite probable that the nearer this curve approaches the sine curve, the less irritating it becomes.

*Effect on the Heart.*—In experimental animals, currents of low frequency and relatively low tension almost uniformly produce ventricular fibrillations, whereas the effects or currents of high tension are more noticeable in the central nervous system.

Prevost and Battelli found that under favorable conditions a current as low as 15 volts at 30 to 150 cycles would produce fibrillary contractions in the heart of the dog. With low tension commercial currents (about 130 volts), cardiac fibrillation is constantly produced, and in the dog these fibrillations always persist after the current is broken, so that once the fibrillations have appeared, it is impossible to resuscitate the animal.

In guinea pigs and rabbits the fibrillations may sometimes disappear and the animal re-



cover, whereas in the rat the heart invariably regains its normal rhythm, this animal being quite immune to low tension currents, either direct or alternating.

This cardiac paralysis with low tension currents in susceptible animals, presents certain very striking clinical features: the heart is essentially the only organ affected by the current, and after the interruption of the current, the animal may continue to breathe and retain consciousness for a minute or more, the respirations and consciousness finally failing only as a result of an anemia of the central nervous system produced by the failure of circulation.

As the tension of the current is increased, decidedly less tendency is seen toward the production of fibrillary contractions, and when these do come on, they are less liable to be final than when produced by low tension currents. Guinea pigs may recover from the fibrillary contractions following the application of a current of 240 volts, when they do not recover from one of 120 volts; rabbits may not show fibrillations with a current of 600 volts, when they do with one of 240 volts. Even dogs fail to show fibrillary contractions on the application of high tension current (1,300-4,800 volts) but on the contrary, the heart beats become quicker and stronger and the blood pressure rises. Crile and McLeod have, however, found that even with currents of 2,300 volts, if the contact be prolonged from five to ten seconds, the blood pressure falls to zero, and the animal cannot be resuscitated by artificial respiration.

Not only do very high tension currents (4,800 volts) show little tendency to cause fibrillary contractions, but Prevost and Battelli have shown that the application of a high tension current (4,800 volts) may re-establish normal heart beats in a heart previously paralyzed by a low tension current, provided the high tension current is applied before the blood pressure has fallen to zero.

The failure to re-establish the heart beats after the blood pressure has fallen to zero is explained by the well known facts that the maintenance of cardiac contractions is largely dependent upon a sufficient pressure in the coronary arteries. With cardiac paralysis, blood pressure falls to abscissa in about fifteen seconds, so that the time for the application of this method of resuscitation must be very sharply limited, unless it be possible to again artificially raise the blood pressure by some method such as the adrenalin-salt solution injections of Crile and Dolly.

All writers seem to agree that very high frequency currents (1,720 cycles) are much less liable to produce cardiac paralysis than those of low frequency (25-150 cycles) with similar voltage.

But very little accurate data is available concerning the behavior of the human heart when

subjected to various tensions of alternating currents. The medical reports of the executions in New York state since 1890 seem to agree that with a current of about 1,500 volts, 15-50 cycles, 2-7 amperes, the heart continues to beat and the respirations show a tendency to re-establish themselves when the contact is broken after a few seconds; but that with a longer application of the current (45-87 seconds), the cardiac action is entirely suspended.

#### EFFECTS OF ALTERNATING CURRENTS ON THE CENTRAL NERVOUS SYSTEM.

As before stated low tension alternating currents may kill by causing cardiac fibrillations without producing any noticeable effect upon the central nervous system; even consciousness may be but little affected, and both consciousness and respirations finally fail only as a result of the anemia of the central nervous system resulting from the stoppage of the circulation. Medium tension currents (600 volts) cause loss of consciousness and respiratory paralysis usually accompanied by cardiac fibrillations. On the other hand, currents of high tension (2,300-4,800 volts) cause instantaneous loss of consciousness with almost instantaneous respiratory paralysis, accompanied only very infrequently by cardiac fibrillations.

If the contact is prolonged with the higher tension currents the anesthesia produced is most profound and may last for half an hour or more, and yet the patient ultimately recovers under artificial respiration, provided there has been no cardiac paralysis. One case is on record in which a man is said to have recovered after four hours of artificial respiration.

#### VARIATIONS IN EFFECTS PRODUCED DUE TO DIFFERENT POINTS OF APPLICATION OF ELECTRODES—FREAK ACCIDENTS.

The markedly variable results from accidental shocks are well known to all, fatal accidents sometimes result from contacts with currents ordinarily hardly considered dangerous, and individuals at other times escape from contacts which under ordinary conditions would seem necessarily fatal.

This must, in part, be accounted for by the poor contacts often formed in accidental cases, as contrasted with the carefully planned contacts of experimental work. Also, due to the arcing tendencies of high tension currents, portions of the body may sometimes serve only as a means of completing the arc, the current not permanently passing through the body.

In experimental work wide variations are seen in the results, depending upon the points selected for the application of the electrodes; this must also be an important factor in explaining the effects produced by accidental contacts. When the electrodes are placed in the mouth and the rectum, the current must necessarily tra-

verse the region of the heart, and with all strengths of current cardiac fibrillation is far more likely to occur than if the electrodes are placed on the head and one fore-limb, or one fore-limb and one hind-limb, in which case the heart does not lie in the direct path of the current; on the other hand, the respiratory mechanism is far more rapidly affected if the medulla oblongata lies in the direct path of the current.

#### TREATMENT OF ELECTRIC SHOCK.

With a definite understanding of the mechanism of death from electric shock, the indications for treatment become clearly outlined. The possibilities of resuscitation are inseparably connected with the factors of respiratory and cardiac failure. In the cases of simple respiratory failure resuscitation depends upon the maintenance of respiration by artificial means until such time as the anesthetic condition of the central nervous system shall have disappeared. The cases with ventricular fibrillation are apparently utterly hopeless from the very first, unless some means be devised whereby rhythmic cardiac contractions of the heart may be promptly re-established.

Artificial respiration may be maintained either by manipulating the body itself in such a manner that the chest cavity is alternately compressed and expanded, or by the use of a pump or a bellows so manipulated as to force air at regular intervals through the trachea and into the lungs in sufficient volume to expand the chest and properly fill the lungs. Expiration is accomplished by simply releasing the pressure and allowing the chest walls to collapse. As the pressure required is not more than eight m.m. of mercury, a simple hand or foot bellows of sufficient capacity will serve perfectly as an air pump, but as the tube must be inserted into the larynx, a suitably curved metal or hard rubber cannula should be provided for this purpose, and provision must be made for the release of pressure during expiration. It is very essential that no effort be made to forcibly suck the air from the lungs, as this causes a collapse of the smaller bronchioles, which effectually seals the air in the alveoli and prevents emptying the lungs.

While artificial respiration may be maintained for some time in a fairly satisfactory manner by manual methods, it is always difficult, and except when performed by skilled operators, the exchange of air is barely sufficient to maintain life.

A properly constructed apparatus for maintaining artificial respiration is very easy to manipulate once the tube is properly inserted into the larynx, and such an apparatus with some one capable of inserting the tube into the larynx should always be on hand in testing laboratories and places where accidents are particularly likely to occur. Artificial respiration should be begun by manual methods at once and main-

tained until this apparatus can be brought to the patient.

A possible point in favor of maintaining artificial respiration by means of this apparatus is the fact that all manual methods require energetic manipulation of the chest wall with more or less accompanying massage of the heart, and from a study of the experimental results it seems quite possible that any traumatic impulses transmitted to a heart through which a current has just passed may tend to establish fibrillary contractions in the heart which would otherwise not occur.

In order that the blood supply to the respiratory centers may be maintained as well as possible and in order that the heart may be well supplied with blood, it would seem to be always advisable to keep the patient in the head down position, best maintained by laying him on a plank or table with the foot end elevated at an angle of 35 degrees.

Whereas cases of simple respiratory failure give fair prospects of recovery with properly maintained artificial respiration, the cases of cardiac failure are at present absolutely hopeless from the onset, and will probably remain so unless some practical means be devised for re-establishing the normal action of the heart.

Prevost and Battelli have shown that the application of a high tension current (4,800 volts) may re-establish the normal heart beats if applied at a time before the blood pressure has fallen too low, that is, within less than fifteen seconds after the time of injury. Robinovitch has secured similar results with the Leduc current, but methods requiring application within fifteen seconds are obviously impossible of execution in practical work.

Within the past few years the researches of Crile and Dolly have added enormously to our knowledge of the factors which maintain the normal cardiac rhythm. These investigators have shown that it is quite possible to re-establish normal heart action in animals killed by chloroform or asphyxia, even after the heart has been entirely stopped for periods up to five minutes or more. Crile and Dolly have shown that the limit of time of resuscitation is not determined by the heart itself but by the susceptibility of the central nervous system to injury by the anemia resulting from the suspension of the circulation. While the heart's action may be re-established after intervals greater than five minutes, the central nervous system cannot stand an absence of blood supply for a much longer period, so that the animals recovering after this period show permanent evidence of brain injury, remaining in the more extreme cases, practically as decerebrates.

Sollman was the first to show that ventricular contractions depend upon a sufficient pressure in the coronary arteries, and that the quiescent heart

may be made to beat in some fluid, even metallic mercury, be forced into the coronary arteries. Crile and Dolly finally devised a means of producing this necessary pressure in the coronary arteries with the heart in situ, using the following method: First, the arterial system is rapidly filled with salt solution by injecting the solution toward the heart through a suitable peripheral artery, and at the moment when the arteries are nearly filled a sufficient quantity of adrenalin chloride is added to the salt solution. This causes the vessel walls to contract, and thus rapidly raises the blood pressure within the arteries. At the proper moment the heart is stimulated by a few quick compressions on the chest wall, which causes it to immediately jump into action, beating very vigorously from the first beat.

The possibilities of this method may be well shown by reporting in detail the results of one of our resuscitation experiments.

Dog No. 11. Small fox terrier.

Chloroform anesthesia.

12.40—Respirations ceased unexpectedly before the apparatus was ready for the experiment. Very slight heart action for a few seconds after respirations ceased. Laryngeal tube inserted and artificial respiration alone tried without avail, the heart action soon ceasing entirely.

12.44—Carotid artery exposed and cannula inserted toward the heart. No bleeding from artery. Artificial respiration maintained constantly.

12.46—Saline infusion into carotid artery with the bottle at a height of five feet above the table, and 1 c.c. of 1-1,000 adrenalin chloride solution injected into tube near cannula after salt solution had been flowing about ten seconds. Indirect cardiac massage by pressure on the chest wall. No response from the heart.

12.49—Salt solution, adrenalin and massage repeated.

12.49.30—Heart begins beating strongly.

12.51—Respirations begin, irregular at first, then become more regular, and animal soon begins to struggle.

12.55—Contact of ten seconds' duration, alternating current of 118 volts, 60 cycles, with electrodes on neck and abdomen.

12.56—Salt solution and adrenalin chloride solution administered as previously, with artificial respiration. Opened abdomen, examined the heart and massaged the same through the diaphragm. Fibrillary contractions of the ventricles, auricles beating. No return of normal beats. Continued to massage heart until

1.15—Experiment abandoned.

The technic of Crile and Dolly is so simple and easy of execution as to make it practically possible to carry out the same in such a place as the Testing Department of the General Electric Company, where a trained man is always in

readiness to care for such emergencies. The writers have therefore made a number of experiments to determine the applicability of this technic as a method of resuscitation in cases of heart stoppage by electric shock.

Our results as regards resuscitation from chloroform poisoning confirm the work of Crile and Dolly, and as regards the death of dogs from low tension alternating currents, our results are in full accord with the findings of Prevost and Battelli and others; but in no instance were we able to re-establish rhythmic contractions in a dog's heart by the normal salt-adrenalin chloride technic of Crile and Dolly once fibrillary contractions had been induced.

The following is a summary of our experiments:

Dog No. 1. Large male setter. Killed by chloroform anesthesia. Attempted Crile and Dolly technic, but with too small a cannula and salt solution bottle elevated only three feet. Result negative.

Dog No. 2. Medium-sized bull dog. Treated as dog No. 1. Results negative except that a few feeble heart beats were established by direct cardiac massage after ten minutes.

Dog No. 3. Large pointer. Treated as dog No. 1. Result negative.

Dog No. 4. Large bull dog. Previous errors in technic corrected by raising salt solution bottle to a height of five feet above the table and substituting a cannula of suitable size.

1.06—Dog killed by chloroform.

1.08—Normal saline infusion toward heart.  $\frac{1}{2}$  c.c. adrenalin chloride, artificial respiration by machine, indirect cardiac massage. Prompt recovery of heart beats, with high blood pressure, forcing bloody liquid back into solution bottle. Re-establishment of normal respirations.

This dog was again killed by re-administration of chloroform, and second attempt at resuscitation after an interval of five minutes failed.

Dog No. 5. Mongrel puppy, weight about 2.5 kilos. Chloroform anesthesia, femoral artery exposed and prepared for insertion of cannula. Inserted laryngeal cannula. Dog almost out of the anesthesia at the time of application of current.

5.30—Ten seconds' contact, 118 volts, 60 cycles, electrodes at side of head and abdomen.

5.30.15—Same contact repeated.

5.30.30—Same contact repeated.

No evidence of pulsation in femoral artery after first contact, but repeated spasmodic respiratory efforts led us to make repeated contacts. Prevost and Battelli noted that dogs may breathe well and retain consciousness for some time after fatal heart failure.

5.33—Saline infusion into femoral artery, with 1 c.c. adrenalin chloride, artificial respiration. Indirect cardiac massage.

No result.

5.34.30—Same repeated. No result.

Opened pericardium through abdomen and diaphragm. Auricles beating, but ventricles contracted with marked fibrillation. Direct massage. No result.

The contracted fibrillating ventricles with beating auricles were in marked contrast to the distended heart found at similar periods after chloroform death.

Dog No. 6—Mongrel puppy. Weight about 10 kilos. Chloroform anesthesia, femoral artery exposed, laryngeal tube inserted.

6.00—Ten seconds' contact, with a current of 118 volts, 60 cycles, electrodes at side of head and abdomen.

6.02—Saline infusion into femoral artery, artificial respiration by machine, adrenalin chloride, 1 c.c. Bimanual cardiac massage with one hand inserted through incision into abdomen and the other on the outside of the chest wall. No result.

6.04—Repeated infusion, adrenalin and massage.

6.07—(Approximately.) On stopping artificial respiration after a period of rather violent cardiac massage, the dog made a few gasping respirations, raising his head somewhat at the same time, and we thought that there were a few spasmodic heart beats at the same time, but accurate observations were impossible during the spasmodic contractions of the chest wall.

6.08—Exposed heart and found usual fibrillary contractions of ventricles, with beating auricles. Direct massage produced no results.

Dog No. 7. Mongrel puppy, weight about 7 kilos. Chloroform anesthesia, femoral artery exposed, tracheal cannula inserted.

7.30—Ten seconds' contact, 118 volts, 60 cycles.

7.31.30—Saline infusion into femoral artery, allowed to flow ten seconds. Artificial respiration.

7.32—One c.c. adrenalin chloride. Cardiac massage bimanually, with one hand inserted through abdominal incision and other on chest wall.

7.34—More saline.

7.35—One c.c. adrenalin chloride. Cardiac massage continued.

7.50—No return of respiration or circulation. experiment abandoned. Heart definitely in fibrillary contraction when first palpated through the diaphragm. No evidence of circulation in femoral artery at any time.

Dog No. 8. Mongrel puppy, weight about 4 kilos. Chloroform anesthesia, femoral artery exposed, tracheal cannula inserted.

11.30—Ten seconds' contact with current as previously. Cannula which had been held in the divided femoral artery by Crile clamps, slipped at moment of contact, and had to be replaced.

11.32.30—Saline infusion into artery. Artificial respiration. One c.c. adrenalin chloride. Bimanual cardiac massage.

11.38—More saline, with 1 c.c. adrenalin chloride.

11.55—No return of circulation or respiration. Fibrillary tremulation from moment of contact. No hemorrhage when clamps slipped. Absolutely no effect from salt solution and adrenalin. Violent massage just before abandonment of experiment forced blood high into solution tube by the action of the massage alone.

Dog No. 9. Small mongrel dog, weight about 7 kilos. Chloroform anesthesia, femoral artery exposed, tracheal cannula inserted.

11.00—Ten seconds' contact, current as in previous experiments.

11.02—Normal salt infusion into femoral artery. One c.c. adrenalin chloride. Artificial respiration, bimanual cardiac massage through incision below diaphragm.

11.05—A slight flutter may be elicited from the heart after prolonged massage through the diaphragm, but no decided heart beat. Dog gave a few deep gasps at this time, raising his head at each gasp. These subsided in a short time and experiment was abandoned.

Autopsy shows lungs to be in good condition; the heart is contracted and practically empty.

Dog No. 10. Small fox terrier. Chloroform anesthesia, carotid artery exposed and cannula inserted into proximal end. Tracheal cannula inserted.

11.45—Began chloroform, pushed same until heart ceased beating. Respirations cease.

11.50—Heart has ceased beating.

11.53—Normal saline infusion into carotid artery, about 75 c.c., 1 c.c. adrenalin chloride. Artificial respiration and bimanual cardiac massage through incision below diaphragm.

11.55—Heart begins to beat forcibly and rhythmically.

11.58—Spontaneous respirations begin.

12.05—Ten seconds' contact, with current as in previous experiments.

12.07—Saline infusion, with procedure as above.

12.20—No return of pulse or respiration.

Dog No. 11. Reported in detail above, see page —

Dog No. 12. Large mastiff. Chloroform anesthesia changed to ether. Carotid artery exposed, cannula inserted.

11.30—Heart and respiration suddenly and unexpectedly cease.

11.35—Saline infusion, 1 c.c. adrenalin chloride. Artificial respiration.

11.40—More saline, with adrenalin. Bimanual cardiac massage. No return of heart beat, found to be due to over distension of heart with the saline infusion.

IN CONCLUSION IT MAY BE SAID:

*First.*—That there are many questions concerning this subject which remain as yet unsolved.

*Second.*—The two great causes of death are cardiac fibrillation and respiratory paralysis.

*Third.*—Low tension currents tend to kill chiefly by producing cardiac fibrillation.

*Fourth.*—As the tension is increased the effect upon the heart becomes less pronounced but at the same time the effect upon the central nervous system becomes more and more certain as the tension is increased so that the high tension currents, death is more likely to be caused by respiratory failure although if the contact is prolonged the heart is also stopped.

*Fifth.*—We have been unable to find any reliable data concerning the action of commercial currents of more than 4,500 volts but all evidence points to the central nervous system as being the chief sufferer from the effects of currents of more than 4,800 volts.

*Sixth.*—Cardiac fibrillation is fatal under known methods of treatment.

*Seventh.*—In cases of simple respiratory paralysis the patient may be kept alive by artificial respiration until the nervous system recovers from the effects of the shock.

*Eighth.*—Further investigations should be conducted to see if the method of Crile and Dolly may not be combined with the high tension contacts of Battelli or those of Leduc and Robinovitch whereby resuscitation might be brought about in cases of cardiac paralysis during periods of up to five minutes following the accident.

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## TYPES OF SCARLET FEVER AND THEIR TREATMENT.\*

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IT is authentically recorded that Hippocrates failed to recognize scarlet fever. I fear most of us have occasionally experienced this same failing, though, luckily, our blunders are not chronicled in medical history. It is not to be wondered at, however, that the father of medicine and we his disciples have been non-plused at times over this lobster-colored malady which unfortunately is so prevalent to-day in Syracuse and other municipalities. Probably no other common disease presents to the clinician, for the diabolical purpose of baffling his skill in diagnosis and therapy, as many puzzling varieties, atypical phases and sudden complications—complications, too, which often overshadow or mask the treacherous disease inducing them—as does this scarlet scamp. Besides we have no means as in diphtheria whereby its bacterial villains can be positively recognized and its identity unquestionably established. Furthermore, the ailment—not satisfied with being complex and bizarre—straggles along in a lazy fashion unhurried by the impatient doctor over a period of several weeks. Occasionally, to be perverse, it prolongs its course by pseudo-relapses and so-called re-infections. Each day it tries some new “sleight-of-hand” trick upon the physician’s diagnostic ability by juggling forth a mysterious symptom or an obscure variation. If by chance it fails to deceive the shrewd M. D. by such subtle pleasantry it begins to smile coquettishly at some susceptible affinity like diphtheria, measles, whooping cough or chicken pox, if perchance they are languishing in its neighborhood. We have had such frequent romances of this sort at the hospital, despite the most watchful chaperonage, that I have come to believe all contagious diseases have no moral or other scruples against intermarriage or plural marriage. Scarlatina is the greatest transgressor in this respect, for like Barkis, “it is always willin’.” For this reason it ought to be segregated in Utah instead of a city hospital. In fact, I have seen it at the same time take unto itself for better or worse—usually worse—such helpmates as whooping cough, measles and nasal diphtheria. One can surmise easier than I can relate the various other unlawful unions it frequently forms despite rigid watchfulness and quarantine, for they are often witnessed by those who have the opportunity to observe the domestic relations of this wily ex-anthem.

But while one at long range may facetiously generalize upon scarlet fever and its antics, it is a serious matter when one is confronted at the

bedside with the disease in all its hideous malignancy. Then it is that one can better realize why the strenuous efforts of overworked, underpaid health officials are wisely and unceasingly put forth to control its contagious havoc; why rigid quarantine rules to prevent its spread are necessary; and why an appropriate, well-equipped and properly conducted hospital is indispensable. To the medical man who in a casual way only occasionally sees mild scarlatina, or to a member of the laity into whose home it fortunately never has stolen, the fuss and furore of fumigation, compulsory quarantine, school inspection and hospital segregation seem the unnecessary work of agitated zealots. But the person who comes into intimate contact with a wide variety of scarlet cases; who carefully watches them through their varying courses back to health—many of them becoming more pitifully scarred internally than victims of small-pox are externally—or who, alas, in many instances fights hopelessly with the unsatisfactory means at his command to loosen the grip of death that remorselessly overcomes his patient, realizes profoundly, without the additional argument of statistics, that scarlet fever is a dangerous malady to trifle with or underestimate.

Since January 1, 1907, to February 1, 1910, there have been reported to the local health bureau of Syracuse approximately 1,420 cases of scarlet fever. Of this number over 652 have been removed to the hospital and placed under my care and supervision. Without following text-book classifications these cases have naturally seemed to fall into certain types or classes which among the nurses and myself have been grouped about as follows: Mild, moderate, severe, malignant and fulminating.

The mild, moderate and severe cases have always largely preponderated and have varied relatively in number to each other in the different years and the seasons thereof. The percentage of malignant and fulminating cases has never been large (I am unable to state the exact figures), but of the eleven deaths which have occurred at the hospital from scarlet fever during the last three years, all but two have been from these classes. Every fulminating case I have seen has promptly died. Not every malignant case, however, has been so unsatisfactory or apparently hopeless; but they are desperate battles to fight and when won the nurses in attendance know they have been on the firing line. The mild, the moderate and the ordinarily severe types of scarlet fever you are all too familiar with for me to attempt a hasty, imperfect description. But the malignant and fulminating cases may be more interesting; for judging from the expedition with which they are hurriedly urged into the hospital, urban doctors at least do not make a very careful study of them or their treatment. Therefore I have chosen to consider these types.

\*Read before the Onondaga Medical Society, February 8, 1910.

I have never seen a person suffering from the effects of a rattlesnake bite, but from numerous descriptions I imagine a fulminating case of scarlet fever is somewhat similar for the skin rapidly grows cyanotic and mottled in large, purplish-red patches, often being covered with an eruption resembling that of variola; the temperature rises rapidly to 105 or higher and stays at this hyperthermic point; the pulse becomes rapid, often almost uncountable, weak and intermittent; the urine is scanty or bloody, or a complete anuria supervenes; stools fœtid and greenish in character, sometimes hemorrhagic, pass involuntarily; emesis dribble from a dry, swollen, ulcerated mouth and pharynx; and a sickening odor develops. Delirium or stupor arising at the onset of the attack mercifully blots out cognizance of this terrible condition and gradually increases until merged in the death whose coming is not usually long delayed. This rapidly-moving, horrifying clinical picture runs its course in from twenty-four to seventy-two hours and is induced by a profound overwhelming toxæmia which like a venom paralyzes and disintegrates every vital center.

Malignant cases present features like the fulminating, but on a less rapid or virulent scale. Delirium or stupor is often present; also high fever and a deep, well-marked general rash, which is followed usually by prompt desquamation; scanty, often smoky urine; a throat swollen and covered with disgusting membrane difficult to distinguish macroscopically from that of diphtheria; a characteristic foul odor; often discharging ears and enlarged cervical glands; a fœtid discharge from the nose and mouth which produces excoriations at the nares and corners of the lips; and a weak, rapid, irregular or intermittent pulse. Such malignant cases linger over a longer period of time—in other words they walk instead of run as do the fulminating—and either eventually die of exhaustion, toxæmia or anuria; or else gradually creep back towards health across a long, tedious convalescence, characterized by extensive epidermal exfoliation, discharging ears, albuminuria and glandular abscesses.

It must not be inferred that all fulminating and malignant cases present as typical or well-balanced a clinical picture as I have sketched—though many of them do. All gradations and variations are met, each presenting some particular symptom or set of symptoms which may apparently dominate or distort the appearance of the usual type. Moreover, the borderline between the two types frequently overlaps or is not definable.

When one has come into intimate contact with several such cases and has observed their glaring eruption—often mahogany-hued—it is not difficult to understand why the disease inducing it was originally christened scarlet fever. No

other type of illness but this as boldly flaunts in deep crimson color the red signal of danger! No other type of illness but this as mockingly writes across its flaring surface, beneath the tracery of one's finger, its dreaded name!

These two types of the infection are not the only interesting phases with which we must contend at the hospital. The proneness of the disease to develop during its protracted course many major and minor complications; or to aggravate pre-existing disorders, provides plenty of clinical material for thoughtful consideration and investigation. The more common complications arising or existing range from nephritis, otitis media, mastoiditis, adenitis, pneumonia, tuberculosis and disorders of the circulatory system, to tetany, torticollis, eczema, rheumatism, alcoholism, incontinence of urine, masturbation and pediculosis. I will not weary you with any remarks concerning these delightful mixtures of affliction for any one of them to do it justice would need special consideration.

The treatment of these dangerous types of scarlet fever—aside from the good hygiene and excellent nursing with which such cases are surrounded at the hospital—is practically directed along two lines, viz., eliminative and supportive. Each patient on admission receives a sponge bath, a grain of calomel in divided doses and is isolated by himself in a well-lit, quiet room, which is ventilated to the utmost—even with wide open windows at this time of year—to allow the maximum revivifying effect obtainable from breathing fresh air. Water *ad libitum* is offered and even poured spoonful by spoonful, along with small amounts of milk and concentrated broth, into the parched mouth. Every four to six hours a pint of normal salt solution is injected beneath the loose skin of the abdomen, chest or back, or is syringed high into the bowel if this organ proves receptive. I have had no experience in giving salt solutions intravenously into the median basilic of one arm while simultaneously abstracting a few ounces of blood from the opposite vein, though the procedure is highly recommended. I believe that in selected cases it might prove more beneficial than the hypodermatic or rectal routes. But right here I want to state most emphatically that the objection to this and all other maneuvers or lines of treatment in malignant scarlatina, is the shock and irritation and the exhaustion from struggling which are often induced. Such unavoidable reactions do more harm than any effort, no matter how seemingly worthy, will do good. Patients afflicted with this type of illness are hypersensitive—especially children—and act, if handled, moved or fussed over, as though their skin and tissues were sore and painful. It is no uncommon sight to see them grow alarmingly cyanotic after a rectal injection or hurried bath. To illustrate how delicate and fragile such cases frequently are and how carefully they must be

managed, I recall a child malignantly ill who was thoughtlessly put through a rather prolonged and vigorous examination during my absence. Within an hour afterwards the girl developed the characteristic symptoms of cerebral hemorrhage and hemiplegia and died a few hours later. My directions to nurses are to discontinue all attempts to use salines if their patient shows signs of resistance, irritation and cyanosis. I furthermore direct them to make no disturbing attempts to cleanse the mouth or apply local applications to the throat. Milk, water and whiskey irritate these parts and cleanse them enough for the time. The lips and nares are kept smeared with zinc oxide ointment, swollen or tender joints swathed generously in cotton and discharging ears gently wiped out. Undernursing rather than overnursing is advisable. Each patient is carefully cultured, nose and throat—even two or three times; nor should this little procedure ever be neglected in scarlet fever. British statistics and the few I have compiled myself bear out the assumption that between 4 and 6 per cent. of all cases are peppered at their onset with diphtheria. If present in malignant cases there should be no time lost in immediately eliminating it with antitoxin. One fiend to contend with is enough at such times.

All drugs as a rule that cannot be given easily mixed with water or milk are administered with a hypodermic or antitoxin syringe. At the head of the list stands spirits of frumenti. The directions for its use in these malignant cases may well read, "Whiskey, more whiskey and then some"; for I believe that in these desperate types we have no other safe supportive and stimulant that will take its place in tiding them over the crucial period, and I have conscientiously tried them all from oxygen to Christian suggestion. It is a sheet anchor and will be found, if watchfully used, the nearest approach to an antidote at our command in combating these virulent infections. Next to it comes strychnia in doses of 1-100 to 1-15 grains every two or three hours. Adrenalin is also valuable, and digitalis though despised by some ought not to be underestimated. In from 5 to 15 drop doses every three or four hours it often slows the pulse, stimulates the heart and contracts the arterioles thus preventing cyanosis. Its use must however be watched carefully to prevent dilating the heart muscle.

As it is uncertain whether scarlet fever is caused by the streptococcus alone, or whether that deceitful germ is just an evil companion united for the sake of sociability with some other yet undiscovered bacteria or protozoa, so necessarily it is more or less problematical how useful are the present antistreptococcic and antistreptolytic serums. I have used them extensively in severe and malignant cases giving 20 to 30 cc. during the course of twelve to twenty-four hours. Some cases have apparently benefited by it; in others I have noticed no change. Where

improvement has seemingly followed the use of serum I have never been fully satisfied that it would not have occurred just the same without it. Competent physicians who have had unlimited chance among all types of cases to demonstrate the virtues of these serums, and who have scientifically compared cases treated by them with control cases not so treated, unhesitatingly state that in their judgment the effect of the serums known to-day is uncertain, unreliable and unsatisfactory. While personally I am inclined to favor this view I use them nevertheless hoping they may do good, knowing they do no harm.

It is indeed unfortunate that we have no antitoxin that will speedily cure scarlet fever after the manner that its twin scoundrel, diphtheria, is now so happily disposed of. But the medical profession in the last few years has marvelously unravelled many tangled mysteries that flesh is heir to, and has miraculously discovered the methods whereby many subtle diseases are cured or prevented. Innumerable lives have been saved or prolonged by this indomitable spirit of research and patient investigation, and the locks of the prison in which are secreted the remedial recipes for the health and happiness of millions of other lives are fast being picked. In the light of these facts it may be encouragingly prophesied that the time is not far distant when we shall be able to confidently syringe a shot of serum beneath the skin of scarlet fever and see with satisfaction this disorderly illness, shorn of its dangers and malignancy, take to its heels and slink away.

### THE HODGEN SUSPENSION TREATMENT OF FRACTURE OF THE FEMUR.\*

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**I**N the management of fracture of the femur, whether of neck or shaft, the two essential indications are to reduce the displacement and to retain the fragments in apposition. Theoretically, in the dead subject Buck's extension would seem to meet these indications perfectly, but in the living patient it is at best only a crude contrivance that falls far short of the requirements and earns for itself the undisputed title of "the surgical pillory." The fatal defect in Buck's method—fatal in more than one sense—is that it requires *two fixed points*, the pulley-wheel and the iliac spine. Of course, the former readily remains fixed, but it would be as undesirable as it is impossible to enforce absolute recumbency on the average patient with a fractured femur through a period of several weeks. In so far as the patient in Buck's extension is permitted to depart from that fixed position of dorsal decubitus the expectation of a good result must

\* Read before the Chemung County Medical Society, September 21, 1909.



necessarily be sacrificed; every change of clothing, every bath, every session with the bed-pan obviously causes *motion at the seat of fracture*. It is for this latter reason that many lives have been lost through excessive zeal in maintaining this unnatural recumbency, and surgical textbooks advise that it is sometimes "good surgery" to abandon all efforts toward treating the fracture in order to save the patient's life by getting him off his back. Would it not be better surgery to *abandon the method*, which is confessedly a menace to life, in favor of one that gives the patient the full liberty of his bed and at the same time meets the indications absolutely? Hodgen's suspension serves such a purpose, for the simple reason that it requires only *one fixed point*.

John T. Hodgen's discerning surgical genius enabled him to combine in his suspension splint most of the advantages of the Nathan Smith anterior wire splint, vertical suspension, Buck's extension and the double inclined plane, while eliminating their several objectionable features. Although the preceding sounds like a proprietary medicine advertisement, the fact remains that the Hodgen principle appeals to the scientific mind strongly because of its mechanical simplicity. He who believes in the "big stick" method of caring for fractures will naturally find it difficult to understand how a fracture of the femur can be effectually reduced and retained without a bed full of lumber, sandbags, and iron weights! Yet he will likewise find it difficult to point out a defect in Hodgen's suspension such as the impracticable fixed point in Buck's extension.

Although the splint proper has undergone certain minor modifications, the essential principle is as Hodgen created it. It consists of a piece of iron wire half the thickness of a lead pencil, bent in the form of a long-armed letter U, the arms being 4 inches longer than the sound limb, measured from iliac spine to the sole of foot, and the base 4 inches wide. At each tip a wire ring is soldered; similar rings are soldered on each arm at points about 6 inches and 20 inches respectively from the tips. An upright wire loop is soldered at each corner of the base. A wire arch hooks into the ring on one tip and is arranged to be hooked into the opposite tip, above the groin, after the splint is applied. Any tinsmith or handy man can make this frame in a few minutes; or a set of three or four lengths may be kept on hand which will serve every purpose.

Over the frame a stout strip of muslin is slung and pinned in place with safety pins to form a hammock to support the limb, giving plenty of room for the bulky thigh and the depression of the heel. To each ring a 4 foot length of waxed express twine or staging is tied, then passed through a small hardwood tent block to loop over the hook of a spring scale (peddler's scale), capable of measuring a 35 or 40 pound weight. To the handle of the scale a 12-foot sash cord is tied; this is then passed through a

larger tent block and looped over the wheel of a screw pulley fixed in a rafter near the centre of the ceiling; the higher the ceiling the greater will be the patient's comfort.

The bed should have a firm mattress, resting on flat boards laid across the side rails, eliminating the springs. Drawing the bed out beneath the screw pulley, the foot posts are raised on 8 or 10-inch wood blocks; a hospital bed, or one with a very low footboard is necessary, since the base of the frame sometimes swings below the foot of the bed. The castors are removed from the foot posts, but not from the head posts, because the bed must at times be rolled to and fro.

The limb, shaved and cleansed, is strapped with 2-inch adhesive plaster from a point below the fracture, but above the knee, to the malleolus, using a separate piece on each side. Opposite the malleolus each strip is turned back with the adhesive surfaces in contact, and stuck on itself to form a non-adhesive tab. To each tab a 2-foot strip of stout muslin bandage is pinned, inserting two strong safety pins parallel with one another and crosswise to the length of the bandage. The entire limb is then bandaged in a flannel roller for support and warmth, leaving only the muslin strip hanging free at the ankle.

Before the splint is applied it should be given a downward bend of 15 degrees to 20 degrees at the point that will come opposite the knee joint when the inner tip is in contact with the perineum.

An assistant now lifts the foot, making moderate extension on the femur, while the surgeon slips the frame under the thigh, brings the inside tip against the perineum or pubis, and hooks the wire arch in place across the groin; the arch serves to prevent the arms from sagging together under the weight of the limb.

Having adjusted the tent blocks to distribute the weight evenly among the four supporting cords and to bring the two arms on a mutual level, the surgeon passes the free muslin strips through the upright loops at the lower corners and ties them together below the sole of the foot, thus dispensing with the nuisance of a foot-piece.

Now the entire limb must be lifted vertically from the bed an inch or so by means of the larger tent block, in order to *determine its weight on the scale*. Let us suppose the limb weighs 25 pounds. The cords are all loosened again to rest the limb on the bed, while the bed is drawn away from the plane of the pulley some 2 feet, more or less, according to the amount of shortening, the patient's muscular development and the weight of the limb. Readjusting the cords, the heel should be lifted just an inch or two from the mattress, while the thigh is lifted only enough to permit the flat hand to sweep beneath it well up to the buttock. The hammock reaches to the buttock but does not support it.

A reading of the scale will now show an ad-

ditional weight, let us say 28 to 35 pounds, depending on the *angle of suspension*. This additional 3 to 10 pounds represents the actual extension force being applied in the axis of the femur; it is not often necessary to apply more than 6 or 7 pounds extension in Hodgen's apparatus.

The hammock may require slight readjustment here and there, by means of the safety pins, to distribute the pressure evenly on the limb; it should particularly make no undue pressure at the flexure of the knee nor at the point of the heel. Finally, the foot of the bed must be rolled slightly away from the fractured side in order to give the limb an *abducted* position on the hip. Now it becomes evident that friction, which precludes accuracy in estimating the actual extension force of Buck's method, is really inconsiderable in Hodgen's suspension. Even though we hang 20 pounds of flatirons or sandbags on the pulley of Buck's extension, the force that actually pulls on the femoral muscles must ever remain conjectural. In Hodgen's suspension the actual extension force is automatically registered on the scale. To be scientific we must be exact.

In Hodgen's apparatus shortening as a rule disappears magically as soon as it is applied; if any remains it is certain to be overcome within the first ten days, when the spastic muscles surrender in the hopeless struggle against an *uninterrupted* pull. Buck's extension force is of necessity variable, jerky, inelastic, frequently interrupted; such a force is not destined to successfully oppose the steady, elastic pull of the contracted muscles. The spring in the scale of Hodgen's gives a certain degree of elasticity besides that of the apparatus itself, and this elasticity absorbs many little jolts that in Buck's extension expend themselves on the victim's nervous system to be reflected outward as maledictions on doctor, nurse, or whoever may be near. In other words, Hodgen's force bears a *scientific* resemblance to the resistance to be overcome, and *all the force is acting all the time*. A considerable share of the muscular resistance is overcome in Hodgen's suspension by the simple and natural expedient of relaxing those muscles producing it; the abduction of the hip and the flexion of hip and knee relax the psoas, iliacus, hamstring and gastrocnemius muscles. These several facts combine to explain why only 3 to 7 pounds of Hodgen's extension force can accomplish what even 20 pounds of Buck's force too often fails to accomplish.

Eversion corrects itself automatically during the first week. Eversion or inversion, when pronounced, indicate incomplete reduction and require careful adjustment of the apparatus at one or another point. When reduction is complete there should be no version of the foot.

The great bogey, however, that causes many surgeons to hesitate, is the fear of *angulation* occurring.

Seeing a patient in Hodgen's suspension sitting up unassisted to eat, helping himself on or off the bed-pan independent of the nurse, or perhaps idly swinging his limb from side to side to while away the time, one who is unfamiliar with the method instinctively fears angulation. As a matter of fact, angulation is less likely to occur in Hodgen's than in Buck's extension. G. S. Brown,\* in an excellent paper on this subject, cites a very apt illustration showing why angulation does not occur, as follows:

Saw a piece of broomstick obliquely in two, and holding the fragments in normal apposition, unite them by rubber bands tacked on the sides under slight stretch. Now, so long as sufficient pull in the axis of the stick is maintained to prevent the bands shortening the stick, not only will there be no angling, but considerable external force is required to produce it. But if the pull be released for an instant the fragments overlap and angulate immediately—exactly the conditions common in Buck's extension.

Like the rubber bands on the broomstick, *the thigh muscles under an uninterrupted pull splint the femur* far more effectively than could any exterior appliance.

The surgeon alone controls the extension force of Hodgen's suspension, while in Buck's this is at the mercy of the sympathetic friends. The leg being its own weight, officious *visitors cannot remove or reduce the weight* "to ease the poor fellow." Indeed the "poor fellow" is the surgeon's able assistant; he soon learns that his comfort is greatest when the scale registers the specified number of pounds which the surgeon has determined, and he "hunches himself" up or down in bed whenever the scale tells him to do so.

A vital point of difference between the surgical pillory and Hodgen's suspension is that, in the latter, whatever motion may result in the limb from the patient's activity, occurs not at the seat of fracture, but at the hip joint, whereas, in Buck's extension every movement of the patient's pelvis means motion at the seat of fracture.

In Hodgen's suspension the patient freely revolves about the pulley wheel, on the suspending cords and his limb as a radius, with his hip describing an arc whose sine is the width of the bed. Provided the scale records the correct figure it matters little, figuratively, whether the patient be in the middle of his bed, under his bed or out on the porch—there is nothing to fear.

Bed sores, exhaustion, and hypostatic pneumonia are attributes of Buck's torture harness; absolute recumbency and senility seem incompatible. The patient in Hodgen's suspension, having the full liberty of his bed, is a cheerful prisoner and he gives his nurse no more trouble than the ordinary invalid.

\* *Surgery, Gynecology and Obstetrics* for May, 1908.

“EXTRACTS FROM CHIRURGIA CURIOSA BY M. G. PUSMANNUS BETWEEN THE YEARS 1659 AND 1705.”\*

By J. H. MARTIN, M.D.  
BINGHAMTON, N. Y.

*Mr President and Gentlemen:*

IT is customary for writers of papers and speakers to begin by making excuses, something I do not like to do, but in this instance I shall have to ask you to bear with me. On account of the cover and several pages of this book being absent when it came into my hands, which was during the past summer, I am unable to fix the exact date of the writing of this book, viz., “Chirurgia Curiosa.” It has an appendix, written by the translator, that bears the date of 1705.

The author dedicated the work to His Sacred Imperial Majesty, Leopold, by the grace of God elected Roman Emperor, Always August, King of Germany, Hungary, Bohemia, Dalmatia, Croatia, Slavonia, etc., etc. Now, as there were six men who bore the name of Leopold, although not all of them had so many titles, yet it has been difficult without considerable searching to establish the proper Leopold. I think that I am safe in saying that it was Leopold I, born June 9, 1640, died May 5, 1705, fourth son of Ferdinand III, was made King of Hungary by his father previous to his death in 1657. So I take it that the work was written some time between 1657 and 1705. The original work was written in High Dutch and translated into English by Conradi Joachim Sprengell, who says that Purmannus wrote five books in all with the titles as follows: Strange and Wonderful Cures made by Gun Shot. His great piece of chirurgery in quarto, called The Lorber Crantz, or Lawrel Crown. A treatise on disease in the eyes. Another on salivation, and as the sum and substance of the whole art of chirurgery, this “Chirurgia Curiosa,” a copy of which I hold in my hand. The translator further says that the author was esteemed one of the most experienced and judicious chirurgeons in Germany, was chirurgeon in the camp before he settled in Breslau, where he was made chief chirurgeon to two hospitals, St. Job and All Saints. It was during this time that he wrote the above named works—or books. As we have now the reputation of the author and dates established we will proceed to read of some things he did.

Partus Cæsareus—what the operation is and how performed.

The Greeks call this artificial but dangerous operation hysterotomatosia, because it's performed in the lower belly of a woman with child, to save if it's possible, both the mother and the infant; or if the mother is dead, to preserve the

child alive; for so Providence is sometimes pleased to order it. As it happened to myself in a corporal's wife at Osterwick, where the woman was dead; but the operation being performed soon after she departed, I saved the child alive, who is now grown to man's estate. But I was not so happy in the year 1690, when I opened a gentlewoman of this place in the presence of Dr. Brusse, Chirurgeon Nevsern and Mrs. Myers, a midwife, after she had been dead about *three hours*, and yet I brought forth a daughter who breathed three or four times and then died also: which was caused only by their neglect in sending no sooner for me, for had I come but one hour before, certainly by God's assistance the child might have been preserved alive.

But to proceed in an orderly method, I will treat of the partus cæsareus, where the woman and child are both alive, which has been successfully performed, in many instances contrary to the opinions of several writers. The ancient physicians and chirurgeons knew little or nothing of this operation and consequently thought it impracticable. Dr. Mauriceau was so extremely prejudiced against it that he calls it a barbarous, inhuman and detestable practice. Paræus was also of the same opinion, saying no skillful chirurgeon would attempt it, nor could any woman survive it. But later authors think it both possible and practicable, and that it may be performed to the preservation both of the mother and child, and prevention of many dreadful and melancholy stories that continually violate our ears on this deplorable subject. Blanckardus commends the operation and says it is a great piece of cruelty to suffer both mother and child to perish together for want of it. Bauhinus, the famous professor at Bazil, has given us the history of a woman that suffered this operation and by it was delivered of two children at the same time, and lived to bear four sons afterward.

In order, therefore, to perform it discreetly and safely, before you attempt it give your patient a clyster, and supply her with good cordials to keep up her spirits and now and then a glass of generous wine. Then, having all things in readiness and a very good light, place your patient on a bed where you may go round it. Tye her legs, thighs and arms to the bed, that she may not be able to hinder you in the operation. Under her back and thighs put cushion and pillows to raise her as high as you think convenient. Then uncover the lower belly and mark the place with ink where you intend to make the section, which must be either on the right or left side the navel, directly upon the musculus rectus, three or four fingers' breadth from the navel, and not above five fingers' long. Make your beginning so exactly, that you don't go so far downwards as to hurt the vasa hypogastrica, nor so high upwards as to injure the diaphragm; but keep directly in the middle, without fearing to hurt the liver on

\* Read before the Sixth District Branch of the Medical Society of the State of New York, at Oneonta, September 28, 1909.

the right side or the spleen on the left, for you cannot so easily come at them, as some persons pretend, who make a great stir about them, but to no purpose.

When you have drawn your mark or line measured by your eye, make an incision with your knife as long as the line, and then you will see the *musculus rectus* under the skin, and how to proceed with the incision to the *peritonæum*, and through that also, where you will see the uterus, which you must also cut through a little, and afterwards proceed further. In doing this you must make use of an incision knife, which has a small button on the point, that you may not hurt the child with it, and make your incision with all the celerity imaginable, for much depends upon it. When all this is done, take out the child and *secundine* and give it to the midwife; with sponges and warm water make all parts very clean, and leave none of the blood or moisture inwardly which ran thither in the operation. The wounds in the uterus first moisten with a *laramentum*, then strew my *prulvis ad suturas* upon them as thick as you think convenient, and do nothing else to them, for her breathing will contract them without the help of sutures or stitches; but the wounds in the belly must be stitched together with so many needles and the silk turned around them as you shall find it necessary; yet so as to leave a hole below for a tent, to evacuate the blood and matter, if any should have staid behind. If there is lodged in the uterus a great quantity of filth, it would be convenient to inject a good drying liquor into it, or keep the orifice in the matrix open with a small pipe, that the corruption may have free passage through it. As for the rest, treat them as we have already prescribed in wounds of the breast and lower belly.

Of Chirurgical Infusion and Transfusion, and why they are in no greater reputation in the world.

There has been a great dispute between Dr. John Daniel Major, Professor of Physick at Kiehl, and Dr. Eltzholtz, the King of Prussia's physician at Berlin, who was the first inventor of this way of cure; they wrote against one another about it in the year 1664 and continued the quarrel until 1667. But Dr. Etmuller, disputing on this subject at Leipzig, in the year 1668, says that Dr. Wren, an Englishman and mathematical professor at Oxford, was the inventor of it. After him it was practiced and improved by Dr. Clark, Physician in Ordinary to the King of England, and after them it was soon taken up by Dr. Major, not long after by Dr. Varolus Fraccasatus, professor at Pisa, and at last by Dr. Eltzholtz and Dr. Hoffman, professor at Altdorff. These ingenious and learned men made their first trials upon dogs, and only with spring water; afterwards with small wine and Spanish wine, then proceeded to purging and vomiting medicines, which being injected into *vena cruralis* or thigh vein, they perceived it to have these different

effects: Water caused a cold shivering or trembling. Wine made them tumultuous and made them tumble up and down like drunken men. Purging medicines being injected they purged and vomited by injecting the infusion of *crocus metallorum*. Opium made them sleep, and too large a dose took away their lives. *Aqua chrysolea* being injected into their vein, the blood presently coagulated and they dyed like men in an apoplexy; and the like they did upon the injection of *spiritus niri vel vitrioli*. Dr. Etmuller says that a quantity of oil of sulphur being injected into the *vena engularis* of a dog, he dyed not, and it being repeated he only grew so extremely hungry that he ate all they could give him: oil of tartar being injected into another dog, he fell a capering and showed a thousand antick gestures. A decoction of arsenic in common water being exhibited in the same manner, they were seized with miserable symptoms and dyed full of torments. Experiments upon dogs succeeding very well, they made trial of it upon men, injecting into their vein in a fever plantain water, sometimes mingled with *aqua cardui benedicti*, upon which the patient was immediately well again. For pains in the head they used *aqua marjaranæ*; for the scurvey *aqua cochleariæ*; for stone snail water, and at length all things that appropriated to the diseases they had to deal with. But sometimes water being too weak, they made use of more spirituous liquors, of which Dr. Major made several successful experiments. He always added some *resina gilappæ*, which purging and vomiting, the symptoms abated and the distemper went off. Dr. Etmuller says that a maid being afflicted with a Falling sickness from her youth there was injected resin *gilappæ gr. vi*, mixed with spirit *lilior convalliorum*, which gave her but one vomit and yet freed her from this disease for some months. At Halberstadt, in the years 1679 and 1680, I injected into two patients, who for many years had been troubled with the Falling sickness, spirit, *Grani* and *Rud. Paconiæ ʒi*, mixed with spirit *lilior convalliorum*, who were both perfectly cured with it. But I had another woman patient, whom these medicines would not wholly prevail upon, for though the *epilepsia* seemed to vanish for three months, yet after that it returned again; whereupon I injected twice *aqua hirundinæ* mixed with *sal volatile*, *Succin*; after which the woman was never troubled with it again. It was also twice tried upon myself; the first time when I was grievously afflicted with a sort of a leprosie; but then it was not artificially performed. The second time was at Anzlam, where I was sick of a violent fever, and ordered *aqua cardui benedicti* to be injected, upon which I was wholly delivered from my fever in less than two days' time.

The operation is performed after this manner: The place being chosen, which is generally the arms or legs, tye them with two good fillets, one above the other below, as the old chirurgeons

used to do, or as those still do that let blood with a flegm. Then open the vein and let out some ounces of blood, to empty the vessel that it may the better receive the liquor to be injected; then put the liquor into your syringe, and put the syringe, which must have a handsome crooked pipe, into the orifice, and loosening the uppermost ligature or fillet inject your liquor by degree, till it is all in. When you first put the pipe into the orifice apply round it good store of cotton to hinder the liquor from running out again. Your syringe must be big enough to hold an ounce; and when you draw out the pipe clap your left thumb upon the orifice, and with your right hand loosen the lowermost ligature, applying first a small and then a large compressor made of fine linen, being both first moistened in vinegar and then bind it up as usually. Some instead of a syringe use a small clyster pipe and bladder, which may do well enough, but in my opinion a syringe is better. If the vein swells upwards, stroke it gently over with your thumb, and that will disperse it.

That this *Chirurgia infusoria* is beneficial in dangerous diseases, where the patient must be speedily helped or all is lost, is very reasonable to believe, because the injected liquors presently mix with the blood, and suddenly conveyed to the heart, and so through the whole body, without suffering any alteration by the stomach or the several fermentative juices, but works immediately upon the disease against which it is kindled. Wherefore I once again admonish the chirurgeon to inject the liquor leisurely, for otherwise it will not mix so well with the blood as it ought to do, but continue about the orifice and cause an apostema;—which mismanagement, has not a little contributed to the decrying and disuse of this admirable *Chirurgia infusoria*.

What liquors ought to be injected is the next particular, and in that the chirurgeon ought to take advice of an able physician, and also prevent any accidents that may happen. Purging and vomiting medicines are to be avoided, because they generally leave a malignity behind them; and for the same reason, you must forbear the use of diureticks and nephriticks; but alexipharmicks, comforting and sweating medicines may be used with safety and success. For a sudorifick Dr. Major commends spirit salis armoniaci  $\text{ʒss}$  because it contains a volatile alkali in it, without any mixture of an oleous matter. (I believe that means ammoniaci, the word having an r where there should be an m.—J. H. M.) Dr. Etmuller also recommends cornu cervi and spirit sanguis humani, mixed with spirit vini camphorati, to revive the almost extinguished natural heat and bring the patient to a sweat; but lest those spirits should coagulate one with another, he mixed two or three drachms of clear water with them.

He says further that the spiritus salis essentialis carnus cervi, made with camphire, is an excellent remedy in malignant fevers, if two or three scruples for a dose was intermixed with a little water. To comfort and strengthen the patient, they used amber, cinnamon and confectio alkermes, and also sal volatile oleosum sylvii, sal volatile cornu cervi, and spiritus cinamomi cum oleo succini. Opiates may also be used with great benefit, if they are well corrected and given in an exact and due quantity.

#### CHIRURGIA TRANSFUSION.

Chirurgical transfusion was also for some time in great vogue and reputation; but since it could not be always practiced, and that patients were unwilling to submit to it, it soon grew out of use; but I am of opinion if Dr. Major, Etmuller, Eltzholtz, Dr. Wren and Clark had lived somewhat longer, it might have been further advanced in the world; but they dying, the operation began to be neglected and dyed soon after them.

I tried it on a merchant's son at Berlin, who for several years was afflicted with a leprosie; I gradually drew out a great quantity of his blood and put into his veins the blood of a lamb; by which means the patient was happily cured, to the admiration of several ingenious persons.

#### HOW PERFORMED.

Transfusion is performed in this manner: Generally the legs or arms are chosen for this purpose; in the arm the vena mediana, and in the leg the vena cruralis; from which you must take as much blood as the strength of the patient will permit. The arm or leg, where the vein is to be opened, must be tyed fast below the opening with a strong fillet. Then you must have in readiness an instrument which is a kind of tube, surrounded with a linen cover, in which cover you must put some warm water to hinder the blood from coagulating or congealing, which passes through the tube. This tube must have on each side a fine silver pipe, one of which must be put into the vein of the man and the other into the vein of the beast, from whom the blood must be transfused, the hair or wool of whose neck must be cut away and a fillet bound about its neck, and the creature tyed so fast that it cannot move one way or other; then the vein being opened both in the man and beast, the blood of the beast will rise into the tube and empty itself into the vein of the arm, and so much for the operation.

P. S.—I am indebted to Prof. Kerr, of Cornell Medical College at Ithaca, N. Y., for the following: Mathhäus Gotfried Purmann—Purmannus being taken for the former name—was born in 1649 and died in 1711.

## WHY THE MARRIAGE OF DEFECTIVES SHOULD BE PREVENTED WHEN POSSIBLE.\*

By WILLIAM T. SHANAHAN, M.D.,

SONYEA, N. Y.

**A** CAREFUL study of the various types of defectives shows that hereditary factors have a marked influence in their development. The family history of a considerable number of patients admitted to our institutions is difficult to obtain in a satisfactory manner for many reasons.

The members of our generation know but little of their relatives of one, two or three generations preceding and absolutely nothing concerning those of a still earlier period.

Then, too, the power of observation of many is too limited to make even a very careful study of their own generation. Despite these facts, one need not hesitate to state that the effect of hereditary influences can be well established in 60 per cent. of the cases of epilepsy and feeble-mindedness admitted to our institutions. Those working among the insane and criminal can adduce similar figures for those types, showing this to be a conservative estimate.

Of course, we must always bear in mind that other causative factors: *e. g.*, environment, disease and traumatism, are active in the development of defectiveness, but in many instances they play only a minor part in the individual predisposed on account of his having been born with a brain and nervous system below the normal. The brief summaries of the following cases taken at random from the histories of the 2,861 patients admitted to the Craig Colony for Epileptics since its opening, in January, 1896, will tend to illustrate and emphasize the facts just mentioned:

A. J. 1562—Male, age 48 years. Father had fainting spells, mother died from tuberculosis when patient was 3 years of age. At 20 years of age he had a sudden left hemiplegia with loss of speech and unconsciousness. Similar attack ten years later. Nothing definite known about his wife's family. He is the father of nine children. The eldest is dead, cause unknown; the second died at 7 months of age during a convulsion; the third and fourth are epileptics and have been patients at the colony; fifth is dead, cause unknown; sixth living; seventh living but has some nervous disease; eighth dead, cause unknown; ninth is living and an epileptic.

Alleged age at onset in this man was 26 years.

T. C. 1986—Male, age 9 years. Second child in family of two children. Sister living and said to have had convulsion at age of 13 years. Father alcoholic and died an epileptic. Mother

subject to fainting spells on exertion. Paternal grandfather epileptic. Maternal grandfather had sunstroke at age of 20 years and was thereafter subject to dizzy spells and headache. Paternal aunt and uncle epileptic.

Onset of epilepsy in this patient at two weeks of age.

J. C. 2101—Female, aged 16 years. Mother insane and asthmatic. Has been a patient at the Gowanda State Hospital for some time. Father was over forty years older than mother. He was subject to frequent and severe headaches. Paternal grandmother was very nervous and is said to have been on the verge of insanity before death. Patient is an only child. She had first convulsion at age of 18 months.

A. S. 2504—Male, aged 16 years. Father insane and has been an inmate of the Manhattan State Hospital for many years. He was an alcoholic. Paternal grandfather died of cancer of liver and grandmother of cancer of breast. Patient is third in line of birth of four children—two boys and two girls. The two sisters are dead, one dying at 13 years of age during a convulsion. Cause of death of other sister is unknown. Paternal uncle epileptic.

Age at onset of epilepsy in our patient 14 years.

R. M. 2646—Male, aged 16 years; feeble-minded. A paternal great uncle and first cousin were epileptic. A great grandfather and great aunt (whether paternal or maternal is not stated) were insane. All of paternal relatives are said to be very nervous. Patient's mother suffered from headaches during early life. A sister of this patient is epileptic and brother feeble-minded.

Onset of epilepsy in patient at 5 years of age.

J. S. H. 2671—Male, aged 34 years. Father died at 81 years from apoplexy. Paternal grandfather died at 82 years from apoplexy. Patient is one of four children, all boys and living. Patient is one of twins. The other twin had convulsions from age of 16 years to 19 years.

There is a vague history of eccentricity and probably insanity on paternal side, several paternal relatives were mentally defective. In one family, first cousins of our patient, four children were defectives. Eldest was a congenital idiot, another was an epileptic and a third had some congenital paralysis.

Patient's first seizure is said to have occurred at age of 26 years.

F. L. 2784—Male, age 15 years. Father formerly alcoholic; he is subject to frequent severe headaches. Mother epileptic from age of 7 until 14 years, then no seizures until birth of first child. She is an alcoholic and probably insane. Patient is youngest of three children. Second child, a girl, is feeble-minded. Eldest, a girl, is said to be

\* Read before the Seneca County Medical Society at Willard, N. Y., October 15, 1909.

normal. Paternal grandfather died at 57 years from asthma.

Age at onset of our patient, 6 years.

E. W. 2794—Female, age 35 years. Father alcoholic, mother epileptic, two sisters epileptic, son is an epileptic.

Alleged age of onset of epilepsy in patient is given as 30 years.

A. L. D. 2807—Female, age 15 years. Father alcoholic, syphilitic and insane. He committed suicide. Mother was very nervous and had frequent headaches. Paternal grandfather mentally unbalanced. Paternal grandmother epileptic. Patient is second in family of four girls, two of whom are dead. Other children in family said to have shown no evidence of epilepsy. Onset in patient at age of 13 years.

M. L. S. 2816—Male, age 24 years. Paternal aunt epileptic, another paternal aunt epileptic and feeble-minded. Paternal great uncle epileptic. Another paternal great uncle had some nervous disease. Two paternal first cousins have tuberculosis. Mother's side negative except one first cousin, an only child, is tubercular.

Alleged age of onset of epilepsy 14 years.

M. S. 2830—Female, age 30 years. Father is paralyzed and has had for years sick headaches every week. Her mother and a brother insane and alcoholic, two sisters are insane, all four have been in the Willard State Hospital. Another brother has "fits," another is hysterical. Paternal great grandfather had "fits" and died at 76 from apoplexy. Paternal and maternal grandmothers died from tuberculosis. Maternal grandfather insane and alcoholic, died at 68 years from tuberculosis. Family on both sides decidedly inferior.

Age at onset of epilepsy, 2 years.

In these cases cited it will be seen that epilepsy, insanity and alcoholism in the ancestor has had without doubt a marked effect in producing defectives among the progeny. Tuberculosis, cancer, rheumatism and other conditions have a questionable influence on the descendants, but from the experience of those familiar with defectives, we can infer that such diseases, if present before or at the time of conception, must transmit a constitution with a lessened power to withstand disease or to develop along normal lines.

The nervous system being the most delicate of the structures of the human organism, would naturally be expected to give way soonest under any deleterious influence brought to bear on the individual.

Another poison acting on the nervous system in a most marked manner is syphilis. All physicians know of the great difficulty in obtaining information relative to this disease existing in the family history of the patient. We know very

well that the majority of people do not realize how prevalent this great scourge is and how by its pernicious effect on the organism it adds to our army of defectives.

Despite this general ignorance, we are all aware that the majority of physicians always endeavor when possible to dissuade a syphilitic from marrying and transmitting disease and deformity to his offspring.

The general public should, however, be made acquainted in a proper manner with the vast damage done by the venereal diseases as is now being done in explaining the production of ophthalmia neonatorum.

Tredgold in his recent book entitled "Mental Deficiency," informs us that the English Royal Commission of 1904 found that the approximate number of aments in England and Wales is one person in every 273. The approximate total number of persons suffering from all forms of pronounced mental disease (amentia, insanity and dementia) is one person in every 130.

He states that "a greater number of defectives are to-day resident in our institutions than was the case a generation back and the exigencies of modern life must undoubtedly lead to an increase of this number in years to come."

We can all agree with him that on account of its prevalence, the condition is one deserving of the gravest consideration. The figures given by the Royal Commission may be higher than what would be found in the United States, if as careful an enumeration could be made, but a proportion of one defective to every 300 of the general population would, I believe, be low.

The public is now being taught how to combat tuberculosis and has in days past been instructed in the measures to take toward preventing the occurrence of smallpox, diphtheria and similar diseases. Why not, when the opportunity presents itself, make an effort toward lessening the number of defectives among us?

The family physician is often consulted by the parent of an insane or epileptic individual as to marriage and its influence on the young man or woman. How seldom does the physician, patient or parent look far enough into the future to consider what the offspring of such a union may in too many instances prove to be?

It is a strange fact in our day, but nevertheless true, that some physicians advise the epileptic to marry with the hope held out that his or her marital relations will bring about a cessation of the symptoms of their dread disease. I have been told by more than one married female epileptic admitted to Craig Colony that such a step had been taken on the advice of their physicians. In one instance, the patient was told that her first child would have the disease and she herself would be free from her symptoms from thenceforward.

Laws exist in some of our states forbidding the

marriage or co-habiting of defectives. Such laws are no doubt evaded in many instances, not only by the more ignorant, but by the so-called educated classes. If, however, they only prevent the bringing into the world of a diminished percentage of defectives, they have well repaid the efforts made in procuring their enactment. The state should have greater custodial powers, especially over female defectives. The co-operation of physicians toward educating the public in regard to this subject could not help after a time but to bring about a lessening in the number of insane, epileptics, etc. I am not so optimistic as to hope to see this brought about in this part of our century, but a beginning should be made now and results will be bound to show themselves before many years have passed.

Too many of us look on these problems as being too difficult to solve. An entire solution will in all probability never be found, but a partial one lies within our grasp, that of providing laws similar to those already mentioned, for preventing the marriage and co-habitation of defectives and for the placing of manifestly defective females under proper protective supervision.

### BACTERIOLOGICAL FINDINGS IN FIFTEEN CASES OF EPIDEMIC CEREBRO-SPINAL MENINGITIS.

By S. R. KLEIN, M.D.,  
NEW YORK CITY.

THE organism isolated from these fifteen cases was practically the same in all of them. As seen in the exudates obtained by lumbar puncture and at autopsy from the central nervous system it was always in pure culture and appeared as a medium-sized or fairly large biscuit-shaped diplococcus, somewhat irregular in size. It sometimes occurred in tetrads and small groups. Definite chain formation was never noted. The organism was usually found, both within and outside of the polymorphonuclear leucocytes. The organism always entirely or partially accolorized by Gram's method in the exudates. In twelve the decolorization was complete, while in five it was described as partial. In the latter cases the staining was usually quite irregular, some organisms losing their stain while others retained it. Similar results were found in the organisms from culture. Capsular staining was not systematically carried out, but in a few instances the failure to find capsules was noted. Coverslip preparations from cultures showed a medium-sized biscuit-shaped diplococcus, sometimes occurring in tetrads, never in definite chains, entirely or partially negative to Gram's stain.

On culture media the organism gave the following characteristics: Plain agar-agar. After twenty-four hours at 37° C. there is a rather deli-

cate gray, sharply-defined, raised, pearly, translucent thin-edged growth, which often has a slightly milky appearance in the thicker parts. The growth often takes place only along part of the streak of inoculation, and small, gray, round discrete colonies 2-5 mm. in diameter may develop the streak. A moderately delicate growth takes place in a stale culture. The addition of glucose to the agar increases the luxuriance of the growth. No gas is produced in glucose agar stab cultures. The growth extends over the surface of the glucose agar slightly. On human blood agar the growth is more certain and more luxuriant than on plain agar. On Loeffler's blood serum there is seen a rather abundant gray, moist, raised growth. Bouillon is slightly clouded and a small sediment, which increases in size with several days' inoculation, is seen. No pellicle formation is noted. Litmus milk is not altered, although coverslip preparations of the culture show growth to have taken place. No growth takes place, as a rule, in gelatin at room temperature.

### CITY HOSPITAL OR COUNTRY HOME?

By H. A. GATES, M.D.,  
DELHI, N. Y.

NOT infrequently does this question come up for consideration, especially in connection with surgical cases. Very naturally our minds turn to the city hospital and there it is that you have the magnificent building costing millions of dollars. It is true that in it is almost every instrument and appliance to deal with every form of disease or to use in the performance of any operation. It is true that many eminent in the profession are to be found here doing the work and teaching others to do the same. It is true that here we find nurses who are learning to care for the sick and the injured and those who have undergone operations under the supervision of graduate and experienced nurses, and all this contributes and is helpful to those who are inmates for any reason, but is this all that is necessary to most surely insure certain and speedy recovery and are they such as cannot be secured practically as good elsewhere, and are there any other conditions and influences which will add still further to secure a good result from the treatment, and if so, where are they to be had and what are they?

Can the immense and costly building secure and keep entirely free from contagion and infection those within when it is daily receiving from without all forms of poison from the millions surrounding it, no matter how thoroughly and liberally disinfectants are used? Can the air within compare with the pure air of the country home? If so, why do those living in its atmosphere come to the country home, as soon as summer comes, for pure air?



Are the conditions there in that bee-hive of work and constantly changing scene and condition of other patients with the noise of the busy city outside, day and night, to be compared with the quiet of the solicitous relatives by day and the absolute stillness of the country night? Or will the extra skillfulness of those within the walls of the city hospital compensate for the loss of strength and vigor and the anxiety of mind on leaving home and friends? And will the condition of mind away from that home and among entire strangers place the nervous system at its best in the point of ability to resist shock and make repair? Or will the divided attention of the nurse among six or eight in the ward (as but few of our country people can afford the private room and special nurse) compare with the exclusive room carefully cleaned and disinfected and the entire and exclusive attention of the one graduate nurse in the country home, "be it ever so lowly"; especially if she be of country birth and life and has left in her heart a good share of the milk of human kindness so much needed and so helpful in this work, and is keenly interested in her friend and also in the success of the country surgeon?

If we add to these advantages and conditions the earnest and painstaking efforts of the country surgeon of liberal experience and good judgment and mature years, together with the association of the family physician with his knowledge of and interest in the individual patient, are we not in a position to expect exceptionally good results?

These are some of the important questions to be considered in regard to surgical cases.

Only a few years ago almost all of the surgery of the country went to the city hospital. Today more than half is done in the country home, and the all important fact is that the results have been found to be in favor of the work done in the country. These results are due to the better sanitary conditions, the saving of the physical forces, the better condition of the nervous system and the kindly and efficient care of one nurse and the capable, painstaking and experienced country surgeon with whom is associated the interested family physician.

### CORRESPONDENCE.

#### WANTED: SPECIMENS OF NERVOUS SYSTEM FROM FATAL CASES OF POLIOMYELITIS.

TO THE EDITOR: I should be greatly indebted to you for any assistance that you could render me through the columns of THE JOURNAL in enabling us to secure specimens of the nervous systems from fatal cases of epidemic poliomyelitis, a disease which is widely prevalent throughout the United States and Canada at present. We should like to obtain portions of the spinal cord and, by preference, of the lumbar or cervical enlargement removed as soon after death as possible, and preserved in plenty of pure glycerin, Squibb's or Merck's or Kahlbaum's. These specimens are to be used for experimental purposes; they can be sent by express at our expense, or by mail addressed to me at the Rockefeller Institute, Sixty-sixth Street and Avenue A, New York City.

SIMON FLEXNER.

### MEDICAL SOCIETY OF THE STATE OF NEW YORK.

On account of the death of Dr. Charles Jewett, President, in accordance with Section 2, Chapter VI of the By-Laws of the Medical Society of the State of New York,

"In the event of the President's death, \_\_\_\_\_, the Vice-President next in numerical order shall succeed him, and the other Vice-Presidents advanced in order,"

Dr. Charles Stover, of Amsterdam, now becomes President; Dr. Joseph W. Grosvenor, First Vice-President; Dr. Charles W. M. Brown, Second Vice-President.

The President, Dr. Stover, has appointed the following committee to draw up suitable resolutions on the death of Dr. Charles Jewett, late President of the Medical Society of the State of New York:

Drs. William F. Campbell, Chairman, Brooklyn; E. B. Cragin, New York; J. A. Sampson, Albany.

### DISTRICT BRANCHES.

#### ANNUAL MEETINGS FOR 1910.

First District Branch—Thursday, October 27th, in Newburgh.

Second District Branch—

Third District Branch—Tuesday, October 4th, in Albany.

Fourth District Branch—Tuesday, September 27th, in Schenectady.

Fifth District Branch—Wednesday, October 19th, in Syracuse.

Sixth District Branch—Tuesday, September 27th, in Cortland.

Seventh District Branch—Thursday, September 15th, in Geneva.

Eighth District Branch—Tuesday and Wednesday, September 27th and 28th, in Buffalo.

#### THIRD DISTRICT BRANCH OF THE MEDICAL SOCIETY, STATE OF NEW YORK.

ANNUAL MEETING, ALBANY, N. Y., TUESDAY,

OCTOBER 4, 1910.

Morning Session at the Albany Hospital.

10-12—Demonstration of medical and surgical cases, illustrating the modern methods of clinical diagnosis.

12-1—Visit by automobiles to the Albany Hospital Sanatorium for Tuberculosis.

1.30 P. M.—Luncheon at the Albany Hospital.

Afternoon Session at 3 P. M. at the Historical and Art Society Rooms.

1. "Limitations of Laboratory Diagnosis," Thomas Ordway, M.D., Albany, N. Y.

2. President's Address: "The Diagnostic House," Andrew MacFarlane, M.D., Albany, N. Y.

3. Address: Simon Flexner, M.D., New York City.

4. "Symposium on Modern Therapeutics. (a) Medical Therapy. (b) Physical Therapy. (c) Serum Therapy."

5. Subject to be announced. Dr. Mary Gage-Day, M.D., Kingston, N. Y.

6.30 P. M.—Dinner at the Albany Club.

8 P. M.—Evening Session at the Historical and Art Society.

Travel—Talks illustrated by lantern slides.

10 P. M.—Smoker at the University Club. Reception to the President-Elect.

SIXTH DISTRICT BRANCH OF THE MEDICAL  
SOCIETY OF THE STATE OF NEW YORK.ANNUAL MEETING, CORTLAND, N. Y., SEPTEMBER 27,  
1910.

MORNING SESSION, 10 A. M.

1. President's Address. F. De W. Reese, M.D., Cortland, N. Y.
2. "The Outlook, An Appreciation." Arthur S. Crittenden, M.D., Binghamton, N. Y.
3. "Glaucoma," R. L. Crockett, M.D., Oneida, N. Y.
4. Title to be announced. Joseph J. Kane, M.D., Binghamton, N. Y.
5. "Some Laboratory Tests as an Aid in the Diagnosis of Disturbed Liver Functions," La Rue Colegrove, M.D., Elmira, N. Y.
6. "The Borderland of Insanity," Professor C. E. Emerson, Ithaca, N. Y.
7. "The Radiographic Findings in Neurasthenia," A. T. Kerr, M.D., and H. M. Imboden, M.D., Ithaca, N. Y.
8. "Extra-Uterine Pregnancy," Christopher Graham, M. D.
9. "Notes on Digestive Disturbances," Robert T. Morris, M.D., New York City.
10. "Supra-Orbital Neuralgia," R. Paul Higgins, M.D., Cortland, N. Y.
11. "Surgery of the Stomach," M. M. Lucid, M.D., Cortland, N. Y.
12. "Tetanus, Treatment and Recovery," P. M. Neary, M.D., Cortland, N. Y.

In addition to the Scientific Program, there will be buffet luncheon at noon, four o'clock tea and automobile rides for the ladies and a reception in the evening given by the Hon. and Mrs. T. H. Wickwire at their residence in Cortland.

SEVENTH DISTRICT BRANCH OF THE  
MEDICAL SOCIETY OF THE STATE  
OF NEW YORK.ANNUAL MEETING AT GENEVA, N. Y., THURSDAY,  
SEPTEMBER 15, 1910.

MORNING SESSION, 9.30 A. M.

1. President's Address. W. W. Skinner, M.D., Geneva, N. Y.
2. "Pathologic Findings in the Right Iliac Fossa," J. P. Creveling, M.D., Auburn, N. Y.
3. "Diagnosis and Clinical Significance of Peritonitis," H. B. Smith, M.D., Corning, N. Y.
4. "General Peritonitis. Shall We Ask Nature to do Her Own Surgery," W. Douglas Ward, M.D., Rochester, N. Y.
5. "Varicose Ulcer and a Method of Treatment," F. W. Lester, M.D., Seneca Falls, N. Y.
6. "Early Diagnosis of Syphilis Through the Detection of Living Spirochæta Pallidæ. Demonstration," E. Wood Ruggles, M.D., Rochester, N. Y.

AFTERNOON SESSION, 2.30 P. M.

7. "Some Neglected Points in Office Practice," George E. P. Stevenson, M.D., Penn Yan, N. Y.
8. "Diet in Typhoid Fever," H. J. Knickerbocker, M.D., Geneva, N. Y.
9. "Systemic Colon Irrigation in Typhoid Fever," William I. Dean, M.D., Lyons, N. Y.
10. "Importance of Recognition and Treatment of Adenoids," A. H. Paine, M.D., Caledonia, N. Y.
11. "Infections of the Urinary Tract by Staphylococcus Albus: Report of Cases," Wesley T. Mulligan, M.D., Rochester, N. Y.
12. "Appendicitis During Pregnancy," C. C. Lytle, M.D., Geneva, N. Y.
13. "Animal Experimentation," Alfred W. Armstrong, M.D., Canandaigua, N. Y.
14. "Arterial Sclerosis as a Factor in Mental Diseases," Thomas J. Currie, M.D., Willard, N. Y.
15. "Care and Treatment of Epileptics," W. T. Shanahan, M.D., Craig County, Sonycia, N. Y.
16. "Iodine Disinfection of Wounds," C. F. Nieder, M.D., Geneva, N. Y.

EIGHTH DISTRICT BRANCH OF THE MEDICAL  
SOCIETY OF THE STATE OF NEW YORK.

ANNUAL MEETING, BUFFALO, N. Y.,

TUESDAY, SEPTEMBER 27TH.

AFTERNOON SESSION, 2 P. M.

President's Address. Edward Munson, M.D., Batavia.

- "Symposium on Poliomyelitis. Etiology and Epidemiology," L. Kaufmann, M.D., Buffalo.  
 "Symptomology," Irving M. Snow, M.D., Buffalo.  
 "Diagnosis," James W. Putnam, M.D., Buffalo.  
 "Sequelæ," Prescott Le Breton, M.D., Buffalo.  
 7 P. M.—Subscription Dinner and Entertainment at the University Club of Buffalo, corner Delaware Avenue and Allen Street.

WEDNESDAY, SEPTEMBER 28TH.

MORNING SESSION, 10 A. M.

- "Latent Sinusitis," George F. Cott, M.D., Buffalo.  
 "Experience with Eclampsia," M. P. Messinger, M.D., Oakfield.  
 "Gun Shot Wounds of the Abdomen," Thew Wright, M.D., Buffalo.  
 "Some Old Truths About Infant Feeding Worth Repeating," Carl G. Leo-Wolf, M.D., Niagara Falls.  
 "X-Ray Diagnosis," Leonard Reu, M.D., Buffalo.

AFTERNOON SESSION, 2 P. M.

- "What is the Conservative Treatment of Prostatic Cases," James A. Gardner, Buffalo.  
 "Intestinal Obstruction," William D. Johnson, M.D., Batavia.  
 "Meningitis," Floyd S. Crego, M.D., Buffalo.  
 "Goitre," G. W. Cottis, M.D., Batavia.  
 "Prolapse of Uterus and Bladder," Earl P. Lothrop, M.D., Buffalo.

## COUNTY SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF  
ALLEGANY.

REGULAR MEETING AT CANASERAGA, AUGUST 4, 1910.

SCIENTIFIC SESSION.

"The County Laboratory; Its Use and Necessity for the Protection of Public Health," C. W. Hennington, Rochester.

"Report of a Case of Hookworm, with Specimen of Worm," H. B. Deegan, Canaseraga.

At the close of Dr. Hennington's paper the following resolutions were passed:

*Resolved*, That the Committee on Public Health publish the paper of Dr. Hennington in all the papers of Allegany County to instruct the people in the need of a county laboratory.

*Resolved*, That all the physicians in the county be present and vote on the location of the county laboratory at the next annual meeting in October.

*Resolved*, That each town submit propositions at that time as to what aid they will give the proposed laboratory if it is located with them.

## BOOKS RECEIVED.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

HOOKWORM DISEASE. Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis and Treatment. By GEORGE DOCK, A.M., M.D., Professor of the Theory and Practice of Medicine, Medical Department, Tulane University of Louisiana, New Orleans, and CHARLES C. BASS, M.D., Instructor of Clinical Microscopy and Clinical Medicine, Medical Department, Tulane University of Louisiana, New Orleans. Illustrated with forty-nine special engravings and colored plate. St. Louis. C. V. Mosby Company. 1910.

**GYNCOLOGICAL DIAGNOSIS.** By WALTER L. BURRAGE, A.M., M. D. (Harvard), Fellow of the American Gynecological Society; Member of the Obstetrical Society of Boston; Consulting Gynecologist to St. Elizabeth's Hospital; formerly Visiting Gynecologist to St. Elizabeth's and the Carney Hospitals; Electro-Therapeutist and Surgeon to Out-Patient's, Free Hospital for Women; Clinical Instructor in Gynecology, Harvard University, and Instructor in Operative Gynecology in the Boston Polyclinic. With 207 text illustrations. New York and London. D. Appleton and Company. 1910.

**A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS, or the Action of Drugs in Health and Disease.** By ARTHUR R. CUSHNY, M.A., M.D., F.R.S., Professor of Pharmacology in the University of London; Examiner in the University of London, Manchester, Oxford and Leeds; formerly Professor of Materia Medica and Therapeutics in the University of Michigan. Fifth edition, thoroughly revised. Illustrated with sixty-one engravings. Lea & Febiger. Philadelphia and New York. 1910.

**GENESIS.** A Manual for the Instruction of Children in Matters Sexual. For the use of Parents, Teachers, Physicians and Ministers. By B. S. TALMEY, M.D., former Pathologist to the Mothers' and Babies' Hospital and Gynecologist to the Yorkville Hospital, New York. With nineteen cuts, forty-seven drawings, in the text. Price, \$1.50. The Practitioners' Publishing Co., New York.

**A TEXT-BOOK ON THE THERAPEUTIC ACTION OF LIGHT,** including the Rho Rays, Solar and Violet Rays, Electric Arc Light, the Light Cabinet. By GORYDON EUGENE ROGERS, M.D., formerly demonstrator of anatomy in the University of New York City. With original illustrations. Published by the Author.

### BOOK REVIEWS.

**OXFORD MEDICAL PUBLICATIONS, EMERGENCIES OF GENERAL PRACTICE.** By PERCY SARGENT, M.B., B.C., (Cantab), F.R.C.S., and ALFRED E. RUSSELL, M.D., B.S. (Lond.), F.R.C.P.

Every physician is liable to meet the emergency case, be he surgeon, general practitioner or specialist. It behooves him to be prepared to act, while further aid is summoned, or his plight will be a sad one. This book has gathered together in a concise form for easy reference, acute and urgent conditions which require prompt recognition and treatment. It is a practical dissertation on diagnosis and the relief of urgent symptoms. It is a guide to some one method which, if not always the best, has at least the merit of having been found by experience to be sufficiently good. The demand for such a book should be large; the automobile and the traveling bag as well as the office desk should claim it as a constant accompaniment. We cannot speak too highly of the subject matter, the lucid style and accuracy of statement, the clearness of illustrations and the compactness of this volume. H. A. F.

**A SYSTEM OF OPERATIVE SURGERY.** By various authors. Edited by F. F. BURGHARD, M.S., F.R.C.S., London, England. Vol. III. London. Henry Frowde, Oxford University Press, Hodder & Stoughton, Warwick Square, E. C., 1909.

This volume probably presents more topics of interest to the average surgeon of to-day than any of the other volumes.

The Bile Passages and Pancreas are considered by A. W. Mayo Robson; the Spleen by B. G. A. Moynihan; Tuberculous Lymphatics by Harold J. Stiles; The Nervous System by L. Bathe Rawling and W. T. Thorburn; Genito-Urinary Organs by P. J. Freyer, J. W. Thomson Walker, F. F. Burghard and David Newman; Operation upon the Thorax and its contents are considered by Harold J. Stiles and Rickman J. Godlee.

One sees at a glance that many of the topics to which particular surgical attention has been paid within the past few years are included in this list.

The surgeon who wishes to consult a work in which the advance status of these branches of surgery is given will find it in this volume, and it is stated in condensed form and with good illustrations.

It may be well said that we wish to know *how* to operate less often than *when* to operate, and the treatment of the subjects is well divided between these two topics.

It is somewhat difficult to select topics for review, but we may refer to the following:

Mayo Robson treats the diseases of the bile passages and pancreas with conciseness and with the authority which his great experience justifies he insists that all surgeons who operate on the gall bladder should be prepared to meet any of the possible complications which arise; he protests against the indiscriminate use of cholecystectomy, the recurrence of gall stones after cholecystotomy is a very rare event, the dangers of cholecystectomy in inexperienced hands is considerably greater than that of cholecystotomy.

The gall bladder has a decided function in supplying mucus, which makes the bile less irritating to the pancreas, in acting to a limited degree as a reservoir and in relieving the back pressure of the bile.

Cholecystectomy is indicated:

1. In cancer or other new growth, when the disease is local and limited.

2. In contracted and useless gall bladder, the result of repeated attacks of cholecystitis.

3. In dilated or hypertrophied gall bladder, resulting from obstruction in the cystic duct.

It may well be remembered that if a cholecystenterostomy should be indicated, a patient whose gall bladder has been removed is in a distressing condition.

Stiles recommends a thorough removal of tubercular cervical nodes, quoting from his own experience and from records of other operators, to show that the results of such operations are better than those which come from any other method of treatment, the technique of the procedure is well considered and well illustrated.

Moynihan gives a very careful consideration of the indications for and against spleen operations and their results, he condemns the excision of leukæmic spleen and regrets that portal hepatic cirrhosis associated with enlarged spleen and ascites has been mistaken for Banti's disease and treated by splenectomy. Injury, abscess, tuberculous cysts and new growth are the most common causes for splenectomy and there is abundant evidence to show that the spleen is an organ which is not essential to life or health; marsupialization may be used for abscesses and certain cysts, and splenoplexy is sometimes indicated for wandering spleen.

Berry, in discussing the surgery of the thyroid, goes carefully into the enucleation of cysts, and of extirpation of the half of a parenchymatous goitre; he does not, however, speak as encouragingly of the surgical treatment of Graves disease, by removal of a lobe and the isthmus of the gland, either preceded or not by a preliminary ligation of the superior thyroids, as either Swiss or American surgeons, nor does he consider the subject as fully as they would in an article of similar length.

Fryer advocates his suprapubic method of prostatectomy in a very convincing way. The operation as he does it, is certainly most satisfactory. The surgical world is not yet convinced, however, whether the suprapubic or the peritoneal methods are preferable for the removal of this organ, but one in reading Fryer's article must be convinced that there are surely many advantages in the suprapubic route.

In consulting this "system" one is frequently annoyed by the poor index and the busy surgeon will frequently turn to another book or system with a good index, instead of trying to find the desired article in this one.

**THE DISEASES OF INFANCY AND CHILDHOOD.** Designed for the use of students and practitioners of medicine. By HENRY KOPLIK, M.D., Attd. Physician, Mount Sinai Hospital; Consult. Physician, Hospital for Deformities. Third edition, revised and enlarged. Illustrated with 204 engravings and 39 plates in color and monochrome. Lea & Febiger, New York and Philadelphia.

To one who has conscientiously attempted to review Dr. Koplik's book, the impression is made that the author has worked very hard to produce a text book of unusual merit.

He has attempted to produce the best scientific thought of the day, in a concise and attractive form, and in this he has succeeded.

The third edition is superior in many respects to those that have gone before. Notably in nutritional matters, where there is a decided improvement. If criticism is to be offered it might deal with too close a tendency to following the conventional forms of text book writing. Those who know Dr. Koplik and his work in children, will doubtless be glad in future editions to see more of the author and less of the opinion of others. A book of this nature stands as the expression of opinion and practice of the author. The work is a decided addition to American pediatric literature and will be most useful to pediatric teachers, students and general practitioners. C. G. K.

**TREATISE ON OBSTETRICS.** By BARTON COOK HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania, etc. Sixth edition, revised and enlarged. W. B. Saunders Co., 1909.

The work which reaches a sixth edition must possess unquestioned merit in this age of multiplicity of books. In this instance the reason is not far to seek, since the author is a man of large experience well digested and possesses the faculty of imparting his knowledge aptly. The revision has been most thorough. In the space at our disposal an analytical review is impossible, nor indeed, is one requisite since any criticism we could offer would simply be the result of possible preference of one accepted technique rather than another—this implies that the work is most modern.

The most expensive additions are to be found in the section devoted to operations. Hirst has herein included all the gynecologic operations. He believes, for instance, that par-hysterectomy for malignant chorioma is as rationally an obstetric operation as is the use of the forceps—and he holds the like view as regards operations for displacements of the uterus, etc., etc. In short, his aim is to make the general practitioner not alone a good obstetrician but also an expert gynecologist and abdominal surgeon. This opinion is held because of the fact that the vast proportion of the diseases of women are the resultants of the child-bearing process. Following this line of argument he offers an elaborate treatise on obstetrics and a very condensed treatise on gynecology.

Whilst we wish much it were possible to make every general practitioner an expert obstetrician, we seriously question if he can also be made an expert gynecologist. Where the former becomes evolved there is left scope for the latter, since most of the operations traceable to poor obstetrics are avoided: thus the infections become a rarity and the lacerations—when they occur—as they must—are repaired either immediately or within a relatively short time after their occurrence. It is desirable, also, that the general practitioner be trained and to recognize and to adapt the proper treatment to ectopic pregnancy. Beyond this he has neither the time to give to the performance of other operations, nor to the study of the technique so as to be able to attend to them expertly. Indeed, his opportunities being rare there would result simply a greater number of immature, embryo operators. In short, hysterectomies for various conditions, operations for displacements, sal-

pingo-ophorectomies, etc., except when emergent operations, must remain for the specialist, and nowadays there are few localities where one either does not flourish or is not within call.

All this is said—not in criticism of the subject-matter—for Hirst shows himself also expert as a gynecologist—but simply because from our viewpoint the proposition of making the general practitioner a specialist in gynecology is not valuable.

The make-up of the book reflects credit on the publishers. The index is very complete and the cuts, as a rule, admirably selected. E. H. G.

**THE CONQUEST OF DISEASE THROUGH ANIMAL EXPERIMENTATION.** By JAMES PETER WARBASSE, M.D. Pp. 176. New York and London, D. Appleton & Co., 1910.

All good public movements have their evil aspects. The evil aspect of the commendable movement in favor of humaneness toward animals is antivivisection. It has flourished in England, and it is attempting, so far happily without much success, to gain a foothold in America. Dr. Warbasse's book is timely and eminently sane, and ought to help materially in spreading correct notions regarding animal experimentation and the evils of opposition to it. The book is dedicated to "the laborers in the fields of the biologic sciences, who wrest from nature her secrets, to the end that life shall be more sweet, that pain shall be relieved, that childhood, youth, and age shall be absolved from the hazards of disease, that death shall be postponed, and that the light of truth shall fall upon the dark places." Somewhat more than two-thirds of the book is devoted to an excellent account of what has been accomplished by the aid of animal experimentation in physiology, medicine, surgery, hygiene, and the diseases of the lower animals; and in the remaining pages there are discussed such subjects as the technique of animal experimentation, the meaning of pain, cruelty to animals, and the characteristics of the antivivisection movement. It is shown that advance in biology and medicine requires the study of living animals. The science of physiology is permeated throughout by such experimental work. In the field of medicine it is difficult to find a single disease which has not been elucidated in some way by this experimental method, and its results are especially brilliant in the chapter of infectious diseases. Surgery is likewise dependent upon experimentation, and if animals are not employed therefor new operations amount to vivisection performed upon man. The animals lower than man equally reap the benefits of the experimental method. Here its mere commercial value may be enormous in a country devoted to the live stock industry. In the United States, for example, a capital of four billion dollars is invested in live stock, exclusive of poultry.

Dr. Warbasse makes clear that animal experimentation does not mean cruelty to animals, and that its object is to benefit humanity. "Of all the cruelties inflicted upon living creatures, the least of these can be laid to the account of the scientific student of animal phenomena." Most of those who oppose this method of laboratory work are actuated by ignorance; some are mentally diseased, a love and sympathy for animals overpowering the normal human affections. Wise governments will not listen to the ignorant and the perverted. Legislation should aid, not hamper, those who are benefitting humanity by their experimental researches. FREDERIC S. LEF.

## DEATHS.

ALEXANDER THOMPSON BULL, M.D., Buffalo, died August 15, 1910.

CHARLES JEWETT, M.D., Brooklyn, died August 6, 1910.

FRANCIS H. STUART, Brooklyn, died September 4, 1910.

# NEW YORK STATE JOURNAL OF MEDICINE

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## EDITORIAL DEPARTMENT

### THE PRACTICAL AND SCIENTIFIC SIGNIFICANCE OF "606," EHRlich'S NEW REMEDY.

**E**VEN the most fastidious critic will have to admit that Ehrlich's remedy for syphilis, designated, let us hope, temporarily, "606," is an eminently practical one, and that it came to stay. Brief as the history of the clinical tests of that remedy is, it contains overwhelming evidence of its marvelous efficiency. By this time Ehrlich is probably in possession of reports of 8,000 or 10,000 clinical cases in which the remedy has been employed. The German medical literature of the last three months contains numerous articles, embodying the experience with this new remedy, critically collected by authoritative clinicians and dermatologists. All agree that the remedy acts miraculously even in those cases in which mercury and other anti-syphilitic drugs fail to produce results. After a single injection of "606" primary, secondary and tertiary syphilitic manifestations show a striking improvement in a few days and are often completely healed in less than fourteen days. Not only do all spirochetes disappear rapidly and completely after a single injection, but the ulcers, which become soon clean, epidermize with unusual rapidity. At the same time the general condition of the patient undergoes a marked improvement. The remedy then renders a twofold service to the diseased body; it destroys the parasitic foe and assists the afflicted host. So far, only very few cases, if any, failed to respond to the new treatment, and only in a few instances was there a recurrence of the symptoms after the first treatment—due apparently to the smallness of the dose which was employed at the beginning. But even in these cases a repeated injection brought the desired effect.

The new treatment proved to be remarkably free from serious complications and consequences. No ocular, renal, nervous or other

symptoms of a serious nature were observed by those who had the opportunity of testing the remedy in hundreds of cases. This is not the place to dwell upon the particulars of the brilliant results. Without doubt, the remedy has its limitations. It will take the ripened, critical experience of many years to establish definitely the indications and contraindications of this remedy. But already now we may claim, on the basis of the accumulated evidence, that "606" is one of the most effective practical remedies we know in medicine.

However, great as the practical importance of this remedy is, we should not lose sight of its theoretical origin, and its scientific significance. We should bear in mind that the curative action of "606" upon syphilis is based essentially on the destructive action of the substance upon the spirochetes, and that it exerts a similar action upon other affections which are also caused by spirilla, for instance, yaws, fowl spirillosis and relapsing fever. These various affections stand clinically mostly far apart. The new substance is therefore essentially a specific against protozoan spirilla. For many years Ehrlich advocated the view that the action of a drug upon a living organism depends upon its having a special affinity for special cell groups or organs of that organism. In his brilliant studies upon immunity this view was more definitely expressed in the assumption that the mechanism underlying a specific action represents a chain consisting of 1, specific receptors attached to the cells to be acted upon, 2, specific complements which exert the action, and 3, a specific intermediary body, amboceptor, which unites the complement and the receptor, and thus brings about the specific action. When a few years ago it was found that atoxyl, an organic arsenical compound, exerts a destructive effect upon trypanosomes, Ehrlich reinvestigated the constitution of that compound and discovered that it consists of the benzol ring to which only the As is firmly attached while

all other adnexa of the compound are easily substituted by a variety of chemical molecules. In such a compound the As plays the rôle of the complement, while the other chemical molecules attached to the benzol ring serve as specific intermediary bodies, to connect the active substance with the receptors of some body cells. Atoxyl contains specific chemical molecules for the receptors of the trypanosomes, hence its destructive action upon these parasitic protozoa; but it apparently contains also intermediary chemical molecules for vital parts of the nervous system of the afflicted animal organism. Ehrlich then set out to create such substitution products which would have specific affinities for the invading protozoa and none or few affinities for the vital parts of the endangered host. Ehrlich and his co-laborers tested so far more than 600 synthetic products, among which only three were found which answered this purpose. It was further found that the acetyl groups of the arsenical compounds seem to have a greater affinity for trypanosomes while the amido and hydroxyl groups manifest a specific affinity for the receptors of the spirilla.

The 606th synthetical compound, which proved to possess specific affinities for spirochetes, bears, therefore, also the name of dioxydiamidoarsenobenzol in which, it may be said, the stable arsenobenzol plays the part of the complement while the hydroxyl and the amido groups play the part of specific amboceptors.

Some of the many facts which come to light and had to be carefully considered in these ingenious, laborious and purely scientific investigations must not be lost sight of also in the practical clinical endeavors. It was found that micro-organisms which withstood the deleterious action of an arsenic compound acquire resistance to arsenic, become, as is technically expressed, "arsenfast" and give rise to the development of arsenfast generations which readily resist the destructive action of that compound. The further administration of larger doses of the remedy endangers only the life of the host, but not that of the hostile parasite. In order to attain success it is, therefore, necessary to find active substances which would be capable of completely destroying all parasites with a single injection. This ideal success Ehrlich designates as *therapia sterilisans magna*. Furthermore in the course of the study of the value of the action of each new compound, there had to be established for each individual species of animals, 1, the largest dose which a healthy animal would stand without any visible harm (*dosis tolerata* = t), and 2, the smallest dose which would cure an infected animal by a single injection (*dosis curativa* = c). Ehrlich's efforts were directed to find a substance, the curative dose of which would be much smaller than the tolerated dose, or in other words, the quotient

t/c would be much smaller than 1, so that in case of necessity much larger doses of the substance could be employed without fear of endangering thereby the life of the infected individual. The new substance "606" offers such ideal relations. The *dosis tolerata* (t) of this substance is for any animal not less than 0.1 per kilogram: this means a dose of about 5 grams for a human being weighing 100 pounds. The clinical experience has demonstrated, however, that a single dose of 0.3 is sufficient to cure an infected human being. This means that for "606" the curative dose is less than 1/16 of the tolerated dose, or the quotient t/c is less than 1/16. It is therefore evident, theoretically at least, that much larger doses than 0.3 can be injected of "606," if required. However, here the clinical experience alone should decide what may or may not be done.

The following two closely related facts are of considerable theoretical and practical importance. It was established that "606" is incapable of destroying living spirochetes outside of the body, in the test tubes. That substance, therefore, is not a germicide in the usual sense, it develops its destructive action only within the body. Then there are two clinical reports on record, in which the injections, which were given to a syphilitic nursing mother, cured the syphilitic infant, although not a trace of As could be detected in the mother's milk. It is evident that in these cases it was not directly the As which killed the spirochetes and cured the babies. The effect must have been due to some reaction products which developed within the system of the mother and were transmitted to the system of the baby with the milk by the way of the gastro-intestinal canal—all of which is most remarkable!

In recent articles in medical journals of this country it was suggested that until Ehrlich's "606" is generally available, sodium cacodylate should be used in syphilis. From the statements made above it can be readily seen that such a suggestion is ill founded. It is evident that the complete success which has been attained with the new treatment has been and can be attained only by specifically prepared arsenical compounds. Various organic preparations of arsenic were used before in the treatment of syphilis, the literature contains many statements on the partial success, failures and some evil consequences of these treatments. Moreover, we have now good reason for advising against the preliminary use of sodium cacodylate: in the patients so treated the surviving spirochetes might become "arsenfast" and thus the patients may be deprived of the benefits of a subsequent treatment with 606. There is already such a warning instance on record. In a patient (in Vienna) who had been previously treated with

sodium cacodylate the injection of "606" proved to be incapable of destroying all the spirochetes and within a few weeks after the injection they reappeared in full force.

To recapitulate briefly "606" is a synthetic chemical product; it is of immense practical value in syphilis; it is a specific curative remedy against various diseases that are caused by various spirochetes; it sterilizes the entire infected body with one single injection in less than twenty-four hours.

I may be permitted to add the following remarks:

Since the external manifestations of syphilis are the main sources of infection and since it is established beyond the shadow of a doubt that these manifestations can be made to disappear by a single injection of "606" in a few weeks, it follows that by compulsory use of such injections the curse of syphilis could be greatly reduced in the near future and perhaps finally be even eradicated. Sanitarians and those who are interested in public health should take this suggestion under advisement; it is now a practical, no longer an utopian idea.

Finally, I would say that physicians, in availing themselves in their practical work of this brilliant new remedy, should not forget that it came from theoretical laboratory studies, and again that physicians and the public should never forget that without animal experimentation the discovery and development of this blissful remedy would have been absolutely impossible.

S. J. MELTZER.

### THE DISTRICT BRANCHES.

THE fall meetings of the district branches of the State Society which have already been held have been well attended and the papers which have been presented have been excellent, some, indeed, of a very high order of merit, which shows that all the wisdom is not concentrated in the large centres of population.

One thing has been noticeable, however, and that is that too frequently several counties entitled to representation at a meeting failed to have even a single member present. This is partly accounted for by the manner in which the districts have been formed, which follows the Judicial Districts of the State. At the meeting of the Sixth District Branch it was pointed out to the writer that the members from the absent counties, on account of railroad connections, would be compelled to be away from home two days. This was more time than they could reasonably devote to the meeting. A reference to the map will show that it will be of advantage to rearrange the districts with this in view. A good attendance at these valuable meetings will be promoted by considering transportation facilities rather than the present Judicial Divisions.

## Original Articles

### A CONTRIBUTION OF THE STUDY OF TREMORS.\*

By M. NEUSTAEDTER, M.D., Ph.D.,  
NEW YORK CITY.

THE pathological anatomy of the cerebro-spinal system in diseases, accompanied by tremors is interesting, since lesions at different sites give rise to different forms of tremors and so far as investigations show they constantly embrace the same areas in a particular disease, a fact which coupled with the clinical manifestations of tremors sufficiently warrant the task I have undertaken, namely, to find out whether each form of tremor produces a characteristic curve.

Horsley and Shaefer have obtained tremors by irritating various points in the cortex, corona radiata and spinal cord. Silige agrees with the conclusions of Lougets and Sancerott that the optic thalamus is the seat of inhibition and a lesion therein will produce a tremor. Raymond, on the other hand—who, so far as the literature shows, made a very exhaustive study of the pathology of tremors—found lesions in different places producing various tremors. In post-hemiplegic tremors he found the lesion to consist in a secondary degeneration of the lateral tracts, and the same is true of tremors accompanying cerebral atrophies. The exact site of this lesion he found to embrace an area of the lateral tracts between a horizontal line drawn through the middle of the anterior horns extending down to the posterior horns and at times even to the periphery of the cord. In multiple sclerosis and chronic myelitis he found sclerotic foci in the lateral tracts. On the other hand, in plumbism, accompanied by an ataxic tremor, lesions in the anterior horns and posterior columns were evident. It is interesting to note the lesion of hemichorea. This Raymond found in a particular fasciculus in the foot of the corona radiata. This fasciculus he describes as situated anteriorly and externally to the sensory bundle and in direct relation with the posterior part of the thalamus, covering it with its fibres. This bundle corresponds to the distribution of the posterior optic artery, which is a branch of the posterior cerebral. He bases his contention, that these lesions are the cause of tremors, on Charcot's explanation of tremors in lateral sclerosis. Charcot compares the spinal cord and its reflex arcs with an electrical apparatus composed of many wires, some of which are interrupted in many places. The current, then, instead of circulating freely will continue in jerks. In much the same way will probably an interrup-

\* Read at the annual meeting of the Medical Society of the State of New York, January 25, 1910.

tion in the lateral or the motor tracts of the central nervous system produce jerky instead of coordinate movements.

Most authors agree that in chorea we find the constant lesion to consist of a disseminated encephalitis characterized by congested foci both in the cortex and sub-cortical white substance accompanied by a characteristic perivascular and pericellular infiltration of leucocytes which produces the symptom complex of chorea.

In paralysis agitans we find invariably an endo and periarteritis (arteriosclerosis) with a secondary chronic inflammation of the adventitial connective tissue and glia. These two processes which are evident throughout the entire cerebral-spinal system, are most marked in the spinal cord. Following this we find a secondary degeneration of cells in the gray substance of the medulla and cord as well as in its posterior columns; then again an alteration in the cells of the anterior horns and in Clark's column, in motor cells of the cortex and Purkinje bodies of cerebellum.

Finally, in Grave's disease were found changes in the medulla which bear a direct relation to the tremor in this disease. Hamond found softening in wall of the four ventricle of fibers running from the olive to the corpora quadrigemina and of the corpora (Nauman), also in the posterior part of the medulla (Lockhard). Mendel, Leube, Kendzior and Zanietofsky found atrophy of the corpora restiformia and of the solitary bundle. Changes in the vagus were found by Müller and Dinkler. Judging from the many hemorrhages and enlarged vessels found in the medulla, floor of the fourth ventricle and the above mentioned changes, many investigators conclude this to be the *locus minoris resistentiæ*.

Clinically speaking, a tremor is an oscillation of a part or of the whole body produced by either a flexion of a group of muscles and a subsequent extension of their antagonists, or by a simple contraction and relaxation of the same group. This process may be a rhythmic or an arrhythmic one. It may be subdued by the will or intensified by it. Furthermore, we differentiate a static and an ataxic tremor, and finally we may include involuntary and irregular or choreiform movements.

If, then, we clinically observe many forms of tremors and in their pathology we find that various forms of tremors are accompanied by lesions at different sites, tracings of these phenomena, or, as Eshner terms them, "tremograms," ought to produce characteristics peculiar to each of these affections. And I leave it for you gentlemen to say whether or not I have been successful in the production of curves that give absolute characteristics of each form of tremor.

Fernet, Cramer, Debove and Boudet, Marie, Horsley, Shaefer, Eshner, and others who

attempted to produce characteristic tremograms, have encountered difficulties, firstly, because of their unsuitable apparatus and, secondly, because they overlooked the fact that the part of which the record is made must be placed in a comfortable position so as not to interfere with the muscles involved and to exclude those not involved. The speed of the revolving drum has also a very important bearing upon the success of the record. Without going into the details of the various apparatus used by other investigators, which have been fully described in the literature, I will at once proceed with the description of the apparatus I have devised and the manner in which I proceed to obtain a tremogram.

The apparatus consists of three parts: (a) a kymograph, (c) a tambour of the Marey type with a string attached to the lever and fastened by a hook to a piece of rubber adhesive plaster, and (b) a recording tambour with a paper writing point; the two tambours are connected with a rubber tube. Fig. 1.



FIG. 1.—Tremograph.

The part affected is now placed in a comfortable position strapped to a band with the adhesive plaster attached to it. Each movement is transmitted to the lever, which causes a depression in the diaphragm of tambour c. which I shall term the receiving tambour. Here the air is compressed and the wave is transmitted to tambour b, which I shall term the recording tambour. This wave causes a bulging out of the diaphragm and a consequent lifting of the lever with its writing point. The drum of the kymograph is now revolving at a medium speed and a curve is thus registered.

I have made in all 420 tremograms, including the following diseases associated with tremors: paralysis agitans, multiple sclerosis, hemiplegia, epilepsy, alcoholism, chorea, hemichorea, Grave's disease, hysteria, cerebrospinal syphilis, dementia paralytica, and dementia præcox.



The material was drawn from the Salpetriere of Paris, from the divisions of Professors Raymond, Dejerine, and Voisin; from Professor Fisher's clinic at the University and Bellevue Hospital Medical College, from the Montefiore Home for Chronic Invalids, and from the division of Dr. Scratchley in the Hospital for Nervous Diseases on Blackwell's Island. I desire to thank these gentlemen for the opportunity afforded me and for their kind encouragement, and I enumerate these sources of supply for my clinical material in order to allay doubt as to the correctness of the diagnosis of the cases examined.

The characteristic feature of the tracing of paralysis agitans is the rhythmical periodicity of the curve. We notice short exacerbations of the oscillations and immediate exhaustion followed by another exacerbation. Each process occupies about two seconds, giving us a picture of a constant wave-like curve following closely the base-line with breaks at regular intervals, as shown in Figs. 2 and 3; and no matter what the amplitude may be the characteristic feature of the curve will prevail.

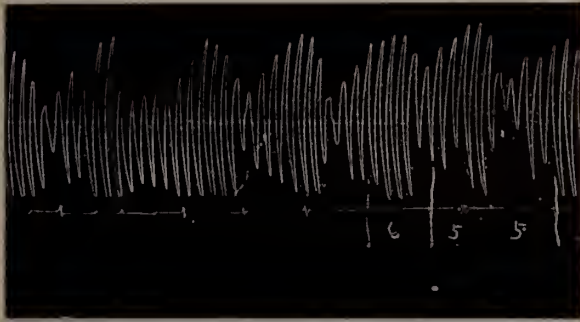


FIG. 2.—Paralysis agitans.



FIG. 3.—Paralysis agitans superimposed on a post-hemiplegic tremor.

In multiple sclerosis we get an entirely different feature, namely, an arching out of the lines and a constant wandering off the base-line with breaks at irregular intervals, and curves of various sizes increased by intention, as in Figs. 4 and 5.

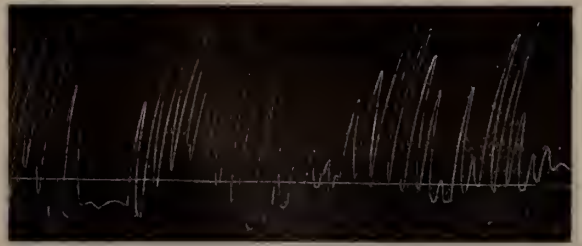


FIG. 4.—Multiple sclerosis.

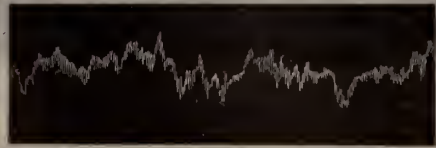


FIG. 5.—Multiple sclerosis.

With the post-hemiplegic tremors, which are intention tremors, the curve is quite different. Here the tracing also wanders off the base-line, but instead of presenting sectional arches it retains the ordinary curve for a period of five or six seconds, either to drop down toward or wander further away from the base-line, and making again a uniform curve (Fig. 6).

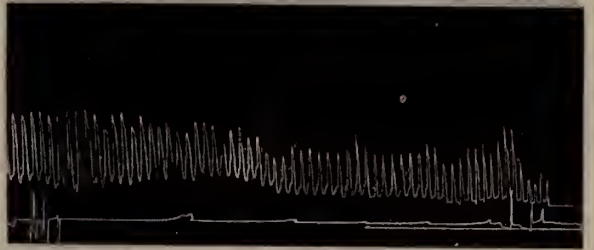


FIG. 6.—Post-hemiplegic tremor.

Chorea (Fig. 7) shows a uniformly characteristic feature. The curve touches the base-line at irregular intervals, giving long strokes with

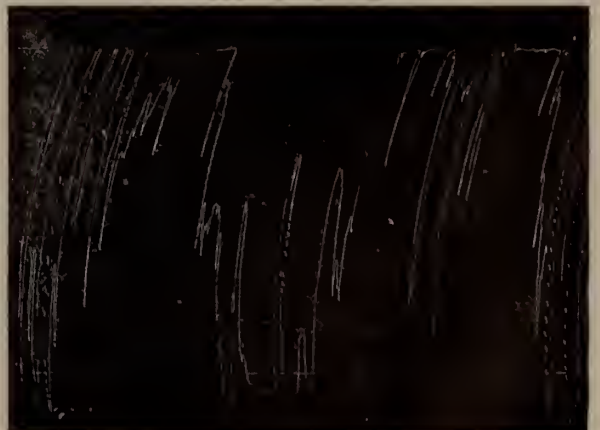


FIG. 7.—Chorea.

two or more short ones to follow them. This tremogram is to be differentiated from that of hemichorea in that one or at most two short strokes follow a long one (Fig. 8).

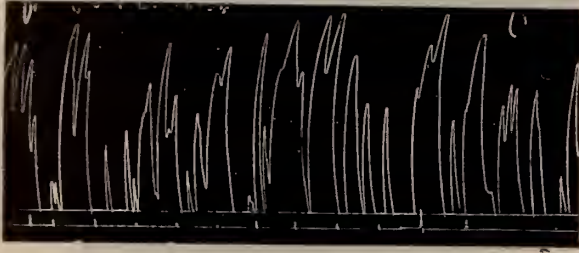


FIG. 8.—Hemichorea.

A characteristic curve is to be noticed in hysterical tremors. Fig. 9. Here we have a uniform and regular wavelike curve that retains its character throughout the entire course on the base-line, never wandering away from it. In connection with this tremogram I desire to mention a most interesting episode. Among the cases

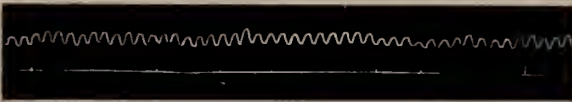


FIG. 9.—Hysterical tremor.

examined in the Salpetriere in Paris a patient with the following history, signs and symptoms, was presented to me: Mrs. Le C., 64 years old, a diabetic with an hemiplegia on the right side, ten years duration, developed a tremor in the right hand six years ago. It looked very much like that of paralysis agitans. At the same time she had a marked ataxia, was unable to bring a cup to her lips, and had an intention tremor. I was requested to produce a tremogram with a view to determine, if possible, the nature of her affection. The patient was accordingly wheeled into the laboratory, assured by a nurse that a new treatment was to be instituted by an American doctor. She naturally manifested a great interest in the workings of my apparatus. I essayed first the right thumb, then the index finger and a regular curve as shown in Fig. 9 was obtained. Neither the characteristic Parkinson nor the post-hemiplegic tremogram is evident. The rest of the fingers showed no tremor, the spasticity of the hand gave away, she opened it freely, the ataxia disappeared, and she was able to drink from a glass as well as any normal person, and a perfect cure was affected so far as her tremor went. I saw the patient several times afterward and to all intents she was without a tremor. The result conclusively proved

the diagnosis and the curve showed unmistakable characteristics of an hysterical tremor.

It is interesting to note the difference between the tracings of dementia præcox and dementia paralytica. In the former (Fig. 10) we



FIG. 10.—Dementia præcox.

see constant and irregular arching with oscillations from eight to ten per second wandering off the line, while in dementia paralytica (Fig. 11) there is no arching, but an irregular line of strokes going up and down the line and making three or four oscillations per second.

The post-epileptic tremogram is similar to that of multiple sclerosis, as shown in Fig. 12, but since I have not an opportunity to assay many cases I am not prepared to state the characteristics,

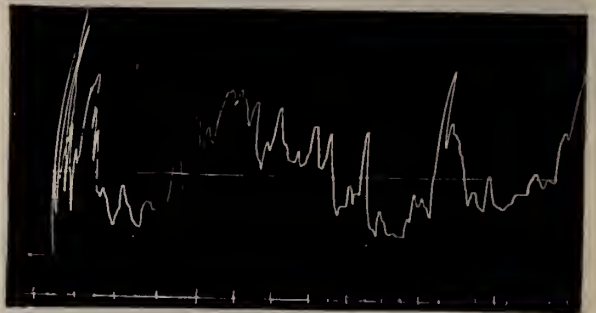


FIG. 11.—Dementia paralytica.



FIG. 12.—Tremor of epilepsy.

The tremogram of alcoholism is peculiarly significant (Fig 13) inasmuch as it shows constant deviations from the base-line and at fre-

quent intervals making long strokes, in spite of the fact that clinically it presents a constant static tremor.

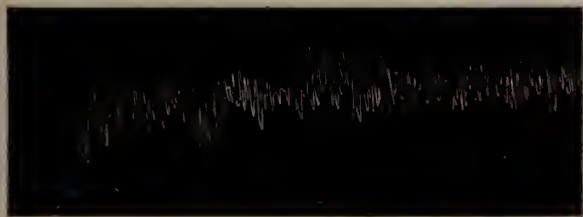


FIG. 13.—Alcoholism tremor.

Lastly, the tremor of cerebro-spinal syphilis (Fig. 14) presents the same characteristic as that of multiple sclerosis. Here the etiology will

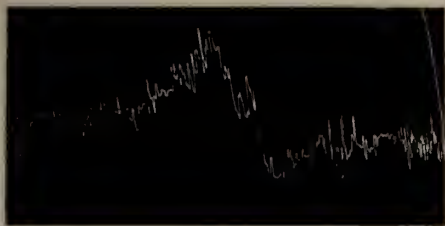


FIG. 14.—Cerebro-spinal syphilis.

have to help us rather than the tracing. While pathologically the lesion is of different nature in each affection, yet the distribution may be the same, and the tracing will, of course, be alike in both instances.

In conclusion, I want to say that (1) the differences between different tremors are of a kind, not of degree, and every form of tremor is distinctive of a form or group of diseases.

(2) No definite relation exists between one form of tremor and any other.

(3) Frequency of movements has no bearing upon the character of the tracing.

(4) There is no material difference between the movements of the two sides of the body.

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#### Discussion.

DR. HENRY L. ELSNER, Syracuse: I do not rise to discuss this paper because I have had no experience in matters of this kind, but it is in direct line with what we are attempting to do with all the diseases where it is possible by these graphic methods to record the characteristic tracings of the heart. The work done by Mackenzie on the heart and Mueller, in Munich, is in line with the kind of work the doctor has reported to-day and it is a work which should be encouraged. These tracings require close study and will require experience for their interpretation, but it is a line of investigation which is of the utmost importance and I have risen to say these few words because I feel this paper ought not to pass without some word of commendation.

DR. ALLEN A. JONES, Buffalo: May I ask Dr. Neustaedter what are the chief characteristic points about these tracings? I can make out a wide range of irregular tremor and a regular tremor, apparently a very fine tremor of the alcoholic, for instance.

DR. NEUSTAEDTER (closing the discussion): The difference is in the complex picture. There are some tremors which will produce regular wave line with intersections between running along the base line. Other tracings will produce archings out with irregular sections going above the base line. Others again produce no sections, but straight lines. Notice the difference in multiple sclerosis and in paralysis agitans. The picture is different so that after you once see it you cannot make a mistake. The oscillations per second have much to do with the picture in multiple sclerosis. For instance, in multiple sclerosis we will have eleven oscillations per second, while in paralysis agitans we have seven per second, so that the oscillations per second and the character of the manipulations decide the question of whether we have flexion, extension, or simple flexion and relaxation, and whether it is a tremor due to fatigue or one which is intensive. One must really compare several of the different kinds of tremors in order to see the difference between them. Invariably it produces the same characteristics every time.



the respective school was incorporated, or first registered with the State Board. The schools are naturally designated by the names of the hospitals with which they are connected.

Some of these hospitals may have given training in nursing before the dates scheduled. And others not yet in the legally registered list (as the Eye and Ear, Samaritan, and St. Christopher's) are doing so now.

There are other limitations to the interpretation of these facts. For instance, a portion of the graduates go away from Kings County, some retire or drop out, while still others come from elsewhere. Again, the length of the school course has varied greatly from time to time. In the experimental stage at the first school it was six months only; this was soon found too brief; it was then for a time in most of the existing schools one year. At variable dates (though mostly in the eighties) this was changed by the different schools to two years. Then, some ten years ago, the course was largely lengthened to three years (explaining, *e. g.*, the want of any graduates at the Long Island College Hospital in 1899). But, as there then at times occurred a deficiency of available trained nurses, the course a couple of years since was pretty generally shortened back to two years. These changes are largely accountable for marked variations in the annual total, though the general trend, like that of a breaking typhoid, remains measurably constant.

## II. CHART.

The three-phase chart is based on the data in the table with the addition, for comparison, of a curve showing the borough's growth.

AA.—The lesser line (mostly below) represents the total number of graduates of all the schools each year, one square for each ten graduates.

BB.—The heavy and nearly straight line (mostly the upper line) shows our increase in population (all of Kings County included), one square to the hundred thousand.

CC.—The ascending series of plusses shows the total number of registered training schools in the berg, one square to each school.

Of course, these ratios are chosen so that the corresponding curves or lines run sufficiently near each other for visual comparison.

The general impression given by the chart is that both schools and graduates are increasing slightly faster than the population, and that both are now about equal to present needs. The number of schools is comparatively a casual matter. These may in time unite, or some grow and supersede others. The main thing is the number of graduates sent out, and their sufficiency or otherwise for general requirements.

Another impression from the facts is that our state law for registration of nurses works well, is sufficiently elastic, and should not be lightly tampered with.

Questions of the relative value of the training given by the different schools are not involved in this purely statistical examination.

These schools may be looked upon from the standpoint of demand and supply; or again, as being a local industry, much as have been medical schools in certain towns. At first glance, so far as the public is concerned, neither the demand nor the supply regulates the number of graduates, but only the needs of the hospitals—a consummation not in harmony with favorite theories of political economy. Still, when (as occurred here a couple of winters ago) a real dearth of registered nurses develops, we soon see it influence the requirements of the course, and thus after all there appears some agreement with economic law. Doubtless the highest fulfillment of purpose results when the needs of both public and hospital combine in regulating the numerical activity of the schools.

To secure these facts and figures it has been necessary to call on various allies and sources of information, not alone the school supervisors and hospital superintendents, but colleagues, libraries and other casual aids. It is practically all, however, from printed and official sources. In the case of two of these institutions there is for a few years a trifling uncertainty in the exact numbers, owing to peculiar conditions of graduation; even so, the figures are correct as given. For all the many favors I can but make a blanket acknowledgment, and offer to the above friends both apologies for the bother made and appreciation for courtesies received.

## MORBID ABDOMINAL REFLEXES AND THEIR SIGNIFICANCE. — ILLUSTRATED BY CASE TYPES.

By ALGERNON T. BRISTOW, M.D.,

BROOKLYN, NEW YORK.

WE are familiar with the well-known referred pains of hip-joint disease and the well-informed physician rarely makes the mistake of calling the early limp and the pain in the knee rheumatism, although surgeons have occasionally seen this mistake occur. The reflexes due to uterine and ovarian disease are also fairly well known, as are those due to faulty refraction and muscular insufficiency in the eye. There is, however, no region in human anatomy wherein the reflexes or referred pains are so numerous as in the abdomen. Moreover, they are not always recognized, are frequently misleading and so become the basis of erroneous diagnosis and erroneous and futile treatment. They may be classified as follows: I. Cases in which the reflex is due to an acute abdominal lesion, which masks the real condition, because it is itself the most prominent symptom; II. Cases in which the reflex results from a chronic lesion within the abdomen but more prominent than the real primary cause of the trouble; III.

Cases which result from the after effects of abdominal trouble long since subsided; IV. Lastly, cases in which the true source of the trouble is entirely extra-abdominal, yet the main symptoms are those of intra-abdominal mischief.

#### CASES FALLING UNDER CLASS I.

The commonest reflex of this type is a sudden intestinal paralysis with constipation and vomiting. Collapse is also frequently present. Such a series of symptoms may be secondary to an acute empyema of the gall bladder or to a perforated gastric ulcer or to a fulminating perforative appendicitis; in fact it may be said that all acute troubles within the abdomen are ushered in by the same train of symptoms. As Treves well says in his work on Intestinal Obstruction: "It is often impossible to say whether a sudden abdominal crisis is due to a perforated vermiform appendix or to the bursting of a pyosalpinx or to the passage of a gall stone or the strangulation of a loop of intestine." The closest attention must be paid to the previous history in order to gain a clue to the real condition, but not infrequently no such clue can be found. This is well illustrated by the following case:

A number of years ago the writer was called in consultation to see a woman of about fifty-five years of age, for the purpose of operating for a supposed intestinal obstruction. She had suddenly been seized with pain in the abdomen, associated at once with explosive vomiting, abdominal distention and obstinate constipation. She was not jaundiced, had never had a similar attack before and her condition was serious. The usual methods of moving the bowels had been tried, such as moderate use of cathartics and the use of high enemas, but without result. Careful examination of the distended abdomen showed that the area of greatest tenderness was over the gall bladder, but on account of the distention no tumor could be felt. There was no ballooning of the rectum indicating an obstruction low down in the large bowel, nor was there tenderness elsewhere. A revised diagnosis of probably gall bladder disease was therefore made, the intestinal paresis and vomiting being regarded as purely a reflex and the usual incision disclosed a greatly distended gall bladder, which proved to be full of muco-pus and to contain fifty-five rather large gall stones. The stones were removed, the gall bladder drained, whereupon all her intestinal symptoms subsided and the patient went on to recovery.

The case was particularly misleading because the patient had absolutely no history of previous gall stone colic. The subjective symptoms coming on suddenly were those of intestinal obstruction. The clue to the real condition lay in the local tenderness. The previous history was valueless. Fulminating appendicitis with few premonitory symptoms is not infrequently mistaken for intestinal obstruction. The writer

has more than once been called to operate for intestinal obstruction in this type of case. The diagnosis is not always so simple as it appears. Careful questioning will usually, however, reveal the fact that the patient has either had a previous attack or a complaint of intestinal dyspepsia, long continued. In the presence of a boardlike rigidity of the abdomen, itself a reflex due to an active peritonitis local tenderness is not always to be found. Safety for the patient in this type of case lies in the early recognition of the true condition before rupture has taken place and given rise to peritonism. Acute lesions of the duodenum and stomach are not infrequently treated for the resulting constipation and vomiting. A most interesting and instructive instance of this error was the following case seen in consultation with Dr. MacEvitt. The patient was a traveling man from the west about forty-five years of age, who, until Dr. MacEvitt saw him, had been under the care of another physician. The history was as follows:

Five days preceding the writer's visit, while in the bathroom, he had been seized with so violent an abdominal pain that he fell writhing to the floor. He subsequently got into bed and when seen later by the hotel physician was in much pain, was vomiting and still complained of great abdominal pain which he was unable to localize. Under treatment his acute symptoms had subsided but the vomiting continued at intervals, and his bowels remaining obstinately constipated, diagnosis of intestinal obstruction was made and every effort had been directed to remedying this condition by high enemas and the administration of cathartics. On the fifth day Dr. MacEvitt was called to see him and requested me to join in the consultation. We found the patient with a much distended abdomen, moderately tender. The temperature had not ranged high nor was the pulse very rapid. There was, however, obstinate constipation and vomiting. The sudden and violent pain might be due to a volvulus, it was true, which would have undoubtedly accounted for the subsequent symptoms, but careful cross-examination of the patient disclosed the following history:

For years he said he had suffered from intestinal indigestion associated with attacks of pain in the epigastrium, often very acute in character. These attacks of pain, however, came on uniformly about three hours after a meal. He further stated that his stools were often black and tarry, especially when he had one of these attacks and for some time afterward. Basing the diagnosis on the history of pain occurring three hours after a meal, on the black and tarry stools and the sudden and violent pain of the recent attack with peritonism, the writer made a diagnosis of ruptured duodenal ulcer, in which Dr. MacEvitt concurred. The patient was removed to the hospital where operation dis-

closed a ruptured duodenal ulcer. Fortunately he made a good recovery, but his life was placed in great peril by the error of the physician who first saw him, who mistook the reflexes of vomiting and constipation for the true condition. Yet, in this case the previous history of the disease was perfectly clear and pointed unerringly to the true diagnosis.

There is another reflex often associated with perforated gastric or duodenal ulcer conducive to error. These patients frequently refer the pain and tenderness to the region of the appendix. Such a case was seen in the wards of St. John's Hospital last winter. This patient had been also treated for three days for intestinal obstruction and when seen by the writer in the hospital referred all his pains and tenderness to the right iliac fossa. He also had a history of "indigestion," but it was not possible to get any history of black or tarry stools. The usual grid-iron incision being made much fluid escaped from the abdomen, but the appendix while moderately congested was evidently not the cause of the existing peritonitis and closing the first incision, a second revealed a perforated duodenal ulcer. This patient also recovered. Incidentally it is worth mentioning that a gastro-enterostomy was not done in either of these cases, but only the simplest of surgical procedures. Yet up to the present time the patients have continued in good health, there being no return of their duodenal symptoms.

The region of the upper abdomen is often a region of fogs and mists to the diagnostician. Thus attacks of biliary colic are frequently associated with the taking of food and the resultant pain and vomiting, particularly if the attack of pain is brief, point rather to the stomach than the gall bladder. These cases require the closest care in history taking, and even then it is sometimes impossible to be sure which condition is present. The writer has operated for gall stones and found a simple erosion of the pyloric mucosa and for gastric ulcer and found old adhesions about the gall bladder and no ulcer, nor any evidence of a former ulcer. The closest history taking will not always avail to prevent error. There are three terms, however, which ought to be on the index expurgatorius of every physician, as applied to pain in the upper abdomen, namely intestinal indigestion, gastritis and neuralgia of the stomach. Each and all of these terms have been applied to cases of gall stone colic, to gastric and duodenal ulcer. They ought to be consigned to the limbo of discarded medical terms together with malaria and scrofula. Intestinal indigestion is an auto-intoxication and except when there is a subacute colitis is not attended by pain or local tenderness. Gastritis is an extremely rare disease (gastritis phlegmonosa) and gastric neuralgia (neuralgia of the stomach) apart from gross anatomical lesions does not occur except as a gastric crisis of tabes.

Let us get rid of these terms in dealing with acute abdominal conditions. They are meaningless and misleading. The appendix itself is sometimes the subject of strange vagaries of referred pain and even tenderness. Two years ago I saw a man of forty-five years of age with fever accelerated pulse and pain in the *left* iliac fossa, which was also tender to the touch. The history of the case and the age of the patient caused a diagnosis of sigmoid diverticulitis to be made, yet a median incision revealed a suppurating appendix low down in the right iliac fossa extending into the pelvis. Only last spring the writer saw a little girl of ten years of age whose pain and tenderness was entirely in the left of the median line, yet a subsequent operation at a second attack which developed a few weeks later disclosed an adherent appendix in a mass of adhesions in the right iliac fossa. It is somewhat strange that a ruptured pus tube should give rise to agonizing pain referred to the epigastrium, yet the writer witnessed such a case a few years ago. The pain and shock was so severe that an acute hemorrhagic pancreatitis was suspected, yet the only lesion was a ruptured pus tube.

We now come to the second class mentioned in the analysis: Cases where there is a chronic lesion within the abdomen giving rise to a reflex more prominent than the exciting cause thereof. Such cases are very numerous and are usually classified as indigestion, biliousness, flatulence, etc. The most common source of these reflexes which are always gastric or intestinal is an appendix which is the seat of chronic inflammatory proliferative changes. Two cases may be cited in which the reflex was gastric, and both took the form of nausea or actual vomiting on the taking of food.

I saw in consultation some years ago a young lady of twenty-three with the following symptoms: That associated with the taking of food she was prone to an attack of nausea or vomiting yet without the occurrence of pain. This was particularly liable to occur if she was going out to an entertainment and was very inconvenient. She was well nourished and not in the least hysterical. She had never complained of severe or even moderate abdominal pain, but whenever her abdomen was examined she always showed slight tenderness over the region of the appendix. Medical treatment was advised and continued for a year in a painstaking manner, but the reflex vomiting occasionally recurred. Had she belonged to the neurotic type it would have been called a neurosis. The removal of a much thickened appendix with dilated blood vessels resulted in the immediate and permanent disappearance of the nausea and vomiting. This was four years ago and she has remained well ever since.

A case of gastric reflex due to a chronic appendicitis which ended in an acute attack was

the following: Patient was a boy of twelve, seen by the writer at the end of an acute attack of appendicitis of not very severe type, whose most prominent symptoms previous to the acute attack had been the occurrence of nausea on eating with occasional vomiting. There was also some general malaise and an unwillingness to play with other boys, also a history of moderate tenderness on pressure. The removal of a thickened appendix with some evidence of a recent and acute attack put a stop to all the digestive disturbances. There is almost no end to the strange vagaries from which these cases of chronic relapsing appendicitis suffer. There is one sign which is never absent, however, when the appendix is the cause of the trouble and that is persistent tenderness in the appendical region. Whenever this exists, together with such reflexes as I have described, and the case fails to improve under appropriate medical treatment, all the symptoms will subside on the removal of the appendix.

Changes in the ovaries of a sclerotic type sometimes give rise to intestinal crises. Such a case was that of a lady approaching the menopause, who had much ovarian neuralgia with violent attacks of intestinal colic and diarrhœa. For a year and more the writer refused to operate, but finally as there was every prospect that the patient would fall into a condition of permanent invalidism, the ovaries were removed. They were cirrhotic, with many small cysts and had suffered much connective tissue change. Permanent relief not only from the ovarian neuralgia, but the intestinal crises followed the operation.

### CLASS III. REFLEXES RESULTING FROM ADHESIONS.

The writer wishes to briefly describe three cases in which intra-abdominal adhesions simulated the following conditions: (a) empyema of the gall bladder due to cholelithiasis; (b) gastric ulcer; (c) chronic intestinal obstruction.

Adhesions of the gall bladder to colon secondary to an attack of appendicitis, simulating cholelithiasis. Three years ago I operated upon a young man of thirty years of age for a fulminating appendicitis. He had visited my office at 9 o'clock in the morning to report after previous treatment for a simple auto-intoxication due to too many club dinners. He was seized with violent abdominal pain about 11 o'clock, seen by me in the late afternoon and operated on about 8 P. M. On incising the peritoneum, much turbid serum escaped and an acutely inflamed and almost gangrenous appendix was removed. From this operation he promptly recovered. In the following fall he began to have attacks of pain and tenderness in the region of the gall bladder. The pain was never acute, but, nevertheless, was disabling, and finally resulted in his taking a vacation and going

south. He returned but little improved, and the case not yielding to medical care, the writer operated, expecting to find a cholelithiasis. The gall bladder was adherent to the colon. The adhesions were separated and the viscus was opened, but no stone was found and the contents of the gall bladder were normal. It was lifted free of the colon and was sutured to the abdominal wall and drained. All the patient's symptoms subsided and he has been perfectly well ever since.

A somewhat similar case anatomically in which the symptoms however pointed to the stomach as the offending organ was the following:

The writer saw in consultation a lady of forty-five years of age who was evidently in a desperate condition. She was greatly emaciated and for weeks had been unable to retain much food, and her condition did not justify lavage for the purposes of diagnosis, as it was evident that unless she got speedy relief she would die. She was sent to the hospital and an exploratory laparotomy done the following morning. The gall bladder was adherent both to the pylorus and the transverse colon from which structures it was freed with some difficulty. On opening it nothing abnormal was found. As the patient's symptoms had been almost entirely gastric, although no thickening or other evidence of ulcer could be found on palpation, the stomach was opened by a two-inch incision and the mucosa carefully examined. No evidence of any lesion could be found nor was there any evidence of duodenal mischief. The stomach was closed, the gall bladder sewed to the parietal peritoneum and drained. This lady recovered from the operation. It is now two years since and she is perfectly well and provided she exercises common prudence in eating, suffers no inconvenience. All her symptoms seemed to depend on the influence of the adhesions between stomach, duodenum and gall bladder. As to the genesis of those adhesions it is impossible to do more than speculate. There was no evidence either of gastric or duodenal ulcer on inspection, but there was a possible gall stone history.

The history of the case in which intra-abdominal adhesions produced symptoms simulating chronic intestinal obstruction is as follows: About seven years ago the writer operated on this patient then a senior at Yale, for acute recurrent appendicitis. It was a clean case, although severe, and the patient made an uneventful recovery. About five years afterward he began to suffer from some constipation associated with cramp like abdominal pains. Then he would have a very large movement of the bowels and for a day or two would be relieved. This went on for some months until medical measures failing an exploratory incision was made at the site of the old operation and a few delicate adhesions separated, one in



particular which seemed to angulate the ilium just before its entrance into the cecum. No permanent relief followed this operation although the patient thought that the pains were less severe than before. A year passed. Meanwhile the patient had been to Europe for three months for a complete rest. He returned looking haggard and worn, still complaining of continuous cramp like pain in the abdomen. Something evidently had to be done and sending him again into the hospital a free median incision was made of considerable length sufficient to thoroughly explore the entire intestinal tract. On opening the abdomen the appearance of the small intestine was striking. It was everywhere in a condition of intense spasm and about the size of the forefinger. No obstructing bands of any kind were found, but the great omentum was firmly adherent deep in the pelvis and making evident traction on the transverse colon. The adhesions were tied off and the colon freed. The omentum and colon were under considerable tension before this was done. As soon as this was done the spasm of the intestine disappeared and the bowel returned to its ordinary calibre. No other cause for the cramplike pains could be discovered although every inch of bowel was examined. Recovery was most rapid and the relief following the operation was complete and promises to be permanent. Here the tension on omentum and transverse colon seemed to have interfered with the normal innervation of the bowel and brought about a condition of intermittent spasm with the resulting pain—plainly a reflex disturbance since the operation disclosed no mechanical obstruction to the fecal current.

The fifth class of abdominal reflexes are those which originate without the abdomen, but which, nevertheless, give rise to symptoms which often closely simulate acute abdominal lesions. There are no cases which give rise to more anxiety on the part of the attendant and no cases which are more difficult to differentiate. In most of these cases the lesion is above the diaphragm. A central pneumonia, particularly in children frequently gives rise to abdominal pains and tenderness in the right iliac fossa. The pneumonia cannot be detected in its early stages, and if care is not taken an operation for appendicitis may be done unnecessarily. Such a case was the following:

The writer was sent for late one night to go into a Long Island town for the purpose of operating upon a little girl eight years old, supposed to have appendicitis. She had been ailing for one or two days previous with intestinal irritation when her temperature suddenly shot up to 105 and she complained of abdominal pain in the right iliac fossa. Careful examination revealed the following facts: First, that her respirations were 55, a ratio entirely out of proportion to her other symptoms unless there was some pulmonary involvement. Second, she was more sensitive to superficial pressure over the

abdomen than deep. Third, she was also sensitive over the lower pleural area. Auscultation revealed an occasional distant rale, not pneumonic in type, and on percussion there seemed to be some diminution in resonance over a limited area. However, no positive physical signs of a pneumonia were detected. On account of the previous history of intestinal auto-intoxication, rectal irrigations were commenced. The following afternoon there was no amelioration of the symptoms, the temperature remaining constantly at 105. The writer expressed the opinion that we were dealing with a streptococcus pneumonia which would shortly declare itself. Dr. Northrup, of Manhattan, saw the child the same evening and although even then the physical signs of a pneumonia were still absent concurred in the diagnosis. The following morning the physical signs of pneumonia were present. The disease spread to the left lung and the child died. This was an extremely perplexing and anxious case, but the diagnosis depended on the high respiratory rate and the fact that the tenderness in the right iliac fossa was superficial, disappearing as gradual and gently increasing pressure was made on the abdominal contents. This symptom complex is most commonly seen in the young, but has been observed by the writer in adults and once in the senile pneumonia of the aged.

More perplexing still are those cases in which an undoubted pneumonia exists together with marked tenderness in the right iliac fossa when it is possible that the pneumonia is secondary to appendical disease. In this case it may be of assistance to remember that a secondary pneumonia of septic origin is lobular and not lobar. Disturbances of renal origin sometimes give rise to abdominal distention and vomiting, even to the point of simulating intestinal obstruction. The writer was once called to operate in such a case, but investigation showed the presence of ureteral colic, the abdominal distention and vomiting being nothing more than a reflex. Finally the gastric crises of locomotor ataxia have given rise to the diagnosis of gastric ulcer. Munro, of Boston, has reported such mistakes and gastro-enterostomies have been done, of course, entirely without result. It is always wise to examine the reflexes of a patient who has paroxysms of abdominal pains without tenderness or temperature. The Romberg, Westphal, Argyle-Robertson symptoms complex when found will immediately clear up the diagnosis.

#### CONCLUSIONS.

In making diagnoses of acute abdominal conditions careful history taking is of the first importance and will frequently prevent gross error.

Careful examination of the abdomen for localizing tenderness or tumor is also of importance. In its absence reliance must be placed on the previous history of the patient.

Occasionally it will be impossible even with the greatest care to avoid erroneous conclusions.

In children especially, acceleration of the respirations in connection with right iliac pain should always give rise to the suspicion of a commencing pneumonia.

In chronic cases simulating gastric ulcer where the analysis of the gastric contents is negative, tabes should always be excluded as a possible source of the gastric symptoms.

### SHALL ALL FIBROID TUMORS OF THE UTERUS BE REMOVED WITH THE KNIFE?\*

By FRANK DeWITT REESE, M.D.,  
CORTLAND, N. Y.

THE subject of fibroid tumors of the uterus, with their pathology, treatment, and removal with the knife, has engaged the attention of the medical profession for many years. The pendulum for and against operation, has swung to and fro, until the general practitioner hardly knows what is best to recommend, in the cases of fibroid tumors of the uterus, that are brought to his notice. He thinks that facts, sufficient to warrant an operation, in all cases, have not been adduced. To wait and see his patient grow large through the abdomen, with prolonged menstrual hemorrhages, he thinks is dangerous. What to do, is the all-absorbing question with him. The general practitioner should be most intensely interested in the subject of fibroid tumors of the uterus, because he is the one who is first consulted in regard to these abnormal growths. All physicians and surgeons should vie with each other in observation and experimentation, until the cause of these tumors has been discovered, and rational methods of prevention have been worked out, as well as methods of diagnosis that are differentiating. The responsibility is not little that a man assumes, when he advises an operation upon a female in her child-bearing period, which will make her sterile and unattractive. Therefore, I ask the question, that is asked in the title of my paper, Shall all fibroid tumors of the uterus be removed with the knife? and I answer without hesitation, No!

I again ask, Shall some fibroid tumors of the uterus be removed with the knife? and I answer just as readily, *Many*.

It is here that we should expend our best energy, and diagnostic skill, to discern which tumor should be taken and which tumor should be left. An early diagnosis is all important, for the prognosis in any given case, depends upon an early recognition of a fibroid growth. What I have to say upon this subject, will be

based upon a series of eighty-two cases in my private practice. I presume it is the common experience of all to have listened to papers read by distinguished surgeons, on the subject of fibroids, and to have noted their failures to present anything like a method for the prevention of the growth of fibroids; they have also failed to present the cause of these pathological growths. Yet in the face of these omissions they recommend that all tumors of the uterus should be removed, not discriminating between a fibroid tumor that can be treated away, and the tumor that should be removed, or one that will probably remain dormant until such a time as the uterus has performed its last menstrual function, and then will gradually be absorbed.

Uterine fibroids are present at any age; in the child before menstruation, and in the decadence of a woman's life.

It is claimed by some that there is a great tendency for fibroid tumors to become malignant in type, in the later periods of life. This, I conscientiously doubt. I am still waiting for some one to convince me that a cell of a pure and simple fibroid tumor is ever changed into a malignant cancer. We find some changes in the fibroids in the later periods of the trouble, strangulated pedicles occur, causing death of the tumor tissues, but not cancers. I am convinced that the malignant troubles associated with so-called fibroids, are due to adenomyomata or some other mixed tumor. The mucosa of the uteri containing simple fibroid tumors, is microscopically normal, while in nearly all of the uteri containing mixed varieties of tumors, there will be changes in some portions of the uterine mucosa. This is an important fact to remember, for, in all cases, the correct diagnosis should be ascertained if possible. Upon the correct findings, an operation should be advised, or treatment recommended.

The causes of fibroid tumors are not definitely known. It is my opinion, however, that they are caused by some irritation of the normal cell, that makes it reproduce itself, thus piling cell upon cell, until the condition can be recognized by symptoms and signs. If ordinary granulating tissue is overstimulated, we expect an exuberance of granulation, which must be checked by ascertaining and removing the cause of the excess tissue. This, of course, is just what must be done with tumor tissue, ascertain the cause and remove it.

The infections from gonorrhœa, miscarriages, retained placenta and puerperal fever, are, I think, exciting causes.

Deformities of the uterus that interfere with perfect drainage, and sterility are also exciting causes. Subinvolution is also a potent cause of fibroid tumors.

There is no doubt in my mind, but what in most women, the probable growth of a fibroid

\* Read at the annual meeting of the Medical Society of the State of New York, January 26, 1910.

is made manifest at the first menstruation which is painful. I would not wish to be understood as saying that all women who begin menstruation with pain have a developed fibroid tumor, but I do hope to be understood as saying that dysmenorrhœa at puberty, is a prognostic symptom, of conditions existing in those girls who suffer from dysmenorrhœa, that may develop a myomata some time before the menopause.

Of my eighty-two cases of fibroid tumors, seventy-seven suffered with pain at the first menstrual period.

As you see, I found a large percentage who suffered from dysmenorrhœa at puberty.

If careful observation by others should confirm my statistics it would be a basis upon which a treatment could be formulated which would be preventive in this class of tumors.

The symptoms of uterine fibroids are not particularly distressing nor well defined from those of other pelvic tumors.

Usually dysmenorrhœa is present, a slight change in the odor of the vaginal discharge is noticed. Prolonged menstrual flow, slight or profuse may occur. As the tumor enlarges, frequency of micturition will appear and possibly obstructive constipation. An early physical examination reveals an enlarged, hard fundus, which is long drawn out, if it is of the intramural variety. If sub-mucous, the uterine cavity is greater in depth.

If sub-peritoneal the surface of the uterus is nodular to the touch. Fibroids of the uterus are usually of slow growth, unless there exists an acute irritation.

A tumor may be present for twenty years without causing many symptoms and then all at once start to grow.

The differential diagnosis is all-important.

This is facilitated by the use of an anesthetic at the time of examination, and it should always be given if the diagnosis is obscure.

The position in which the patient is placed adds to the ease in differentiating between one fibroid tumor and another, as well as between all pelvic tumors.

That position is dorsal, with thighs completely flexed on abdomen, having the abdominal muscles relaxed.

The patient should hold her own knees if an anesthetic has not been given.

The position, as you will readily see, shortens the distance between the fingers while one is pursuing the bimanual search. One cannot give an ironclad rule for removing certain fibroid tumors, and leaving others, for such a rule has not as yet been evolved.

Experience teaches that large sized tumors with small pedicles are better out of the patient's abdomen than in it.

Mixed fibroid tumors, if so differentiated, should be removed at once, because these tumors

may contain malignant cells, which may be the leaven that will make the whole lump cancerous, as the woman approaches the climacteric.

The fibroid with a twisted pedicle should always be removed, as soon as the condition is discovered.

The tumors that persist in growing, should be removed before they become too formidable in size; the operation is attended with less danger for the patient, and therefore should not be delayed. Some fibroids that bleed, should first be curetted, and if the bleeding continues, should be removed, if the hemoglobin is not below seventy and the patient is not too much exhausted. Packing a bleeding uterine cavity before or after curettement with gauze saturated with a solution of adrenalin and bichloride of mercury, is the proper method to pursue in these cases, while waiting for the patient to regain blood and strength sufficient to withstand the shock of the surgeon's knife.

Fibroid tumors complicated with severe valvular heart trouble, should not as a rule, be disturbed with a knife, especially if the tumor is of considerable size; because the natural shock of the operation, from loss of blood and equalizing of the circulation, may be accompanied by fatal collapse. However, we must always bear in mind that many heart murmurs associated with uterine myomata, are cleared up, when the patient is relieved of the tumor. For example, one of my cases, a woman fifty years of age, suffering from an immense fibroid, which was bleeding, consulted a surgeon in a neighboring city, who would not attempt an operation, because of a well marked mitral regurgitation. She was treated locally, by me, for removal of the tumor until the menopause was established, with a complete absorption of the myomata. All heart trouble disappeared with the tumor and the woman is now sixty-two years of age, strong and healthy.

There is a class of fibroid tumors that should not be removed with the knife, neither are they in the least curable by any known treatment, but stand out distinctly, in a class by themselves. Two of my cases were of this variety, and were operated upon after I had advised against it, and both died. I will relate the history of only one of the cases, for they are nearly alike.

A woman fifty-two years of age, had passed the menopause. The tumor nearly filled the true pelvis. There was frequent micturition, constipation, anemia and slight gastric disturbance. Skin yellow. At time of operation, hemoglobin thirty, slight albuminuria with quick pulse. The patient was fairly well nourished, and could take food with some comfort. She suffered from severe headache. There was complete suppression of urine after the operation. This patient was a useful mother whose life was shortened by the operation.

I have found in my practice that all intra-

mural fibroids, pure and simple, if seen early, are amenable to treatment, therefore, I say that an operation in this variety of uterine fibroids, should never be advised, until local and constitutional treatment has been pursued for months.

My experience teaches me that a successful cure will be the reward in a large number of cases.

Of the eighty-two cases, 60 per cent. have recovered, and others are in different stages of improvement.

Of this series of eighty-two cases, three were operated upon by other surgeons with two deaths. Another was operated upon, successfully, by me and lived. There is one case which should be operated upon at once, but the patient refuses to be mutilated.

Another is debatable, but is in a patient, who is fifty-two years of age and who declines to entertain the idea of a removal of the fibroid. During the period of my observation of these eighty-two cases, I have seen eleven cases of cancer of the cervix and fundus. All but two of these were operated upon.

The findings in the nine specimens, showed only one case where a fibroid was associated with the carcinoma, and in this case it was a question whether the small fibroid nodules were not due to the acute irritation derived from the malignant growth. The success of the knifeless treatment of fibroid tumors depends first upon an early and accurate diagnosis.

The earliest diagnostic symptom of a uterine myomata is dysmenorrhœa, and a decidedly prognostic symptom is dysmenorrhœa at puberty. Secondly, if local and constitutional treatment of uterine fibroids is successful, it depends upon the faithfulness of the patient and the thoroughness of the physician.

## ARTERIAL HYPERTENSION.\*

By PAUL B. BROOKS, M.D.,  
NORWICH, N. Y.

SIX months ago, at a meeting of this Society, this assertion was made: "No physician can practice medicine intelligently without the aid of a sphygmomanometer!" Later, another physician, a practitioner for many years, gave as his opinion, in substance, that the sphygmomanometer had no established place in medical practice, since it was possible for the trained finger to distinguish between high and low arterial tension.

As to statement number one, I believe there are still physicians who carry on a competent and intelligent practice without the aid of this instrument, and many more, who are using it daily, whose patients would be better off if their physicians had never seen it.

As to number two, some one has said that we

have entire confidence in our ability to measure arterial tension with our trained fingers until we have had an opportunity to compare our findings with the reading of a sphygmomanometer. Perhaps, even then, our fingers will be like Pat Purdy's watch. Pat's watch was always right. He never had to set it. But he compared it, occasionally, with the town clock, to see how far wrong the town clock was.

While it is possible, with the finger, or a combination of fingers, to distinguish between a high and low tension, it is not possible to distinguish between different degrees of hypertension above 200 mm. or thereabouts.

It is to be assumed that any physician who considers himself competent to judge the merits of the sphygmomanometer, knows something of the instrument, its mechanism, and the technique of its application in medical practice. He knows, too, its sources of error, which are several, most of which can be overcome, knowing, as he supposedly does, not only his own instrument, but sphygmomanometers in general. Therefore we will not stop for details regarding the instrument itself.

In approaching our subject there are certain questions to be answered before we can arrive at a satisfactory conclusion regarding the value of the sphygmomanometer. First, what is "blood pressure"? Then, can we fix upon a definite degree of pressure and say, "This is normal; that is too low or too high"? Is it worth while for us to know whether blood pressure stands at 160 mm. hg. or 300? Will this knowledge add anything to our ability to diagnose disease, or having diagnosed it, treat it more intelligently?

"What is 'blood pressure'?" In the common acceptance of the term, when we speak of blood pressure, or pulse tension, we refer to the resistance of the blood column at the height of the pulse beat. It is commonly measured in millimeters of mercury. In more precise terms there is a distinction between the tension at the height of the pulse beat, which is the systolic pressure, and that between the beats, or the diastolic pressure. The latter is now recognized to be about equally important.

Can we establish a so-called "normal" pressure? It is obvious that the value of the blood-pressure record lies largely in the comparison of the tension in the same individual at different times. Beyond this we can only select an average for different individuals under more or less similar conditions. For instance, in normal, middle-aged individuals the usual systolic pressure is about 140 mm., it being lower in children and higher in advancing years. Janeway considers that, with the wide armlet, a pressure above 145 mm. is pathological for the middle-aged, as is one above 160 mm. in later life. The diastolic pressure probably never goes much below 50 mm. except as death approaches, when it gradually falls to zero.

\* Read before the Chenango County Medical Society, June 14, 1910.

Is a definite knowledge of the pulse tension worth the trouble necessary to obtain it? In order to answer this question let us first note the conditions upon which the blood pressure depends, then go on to a consideration of the relation which this pressure bears to a few common conditions, pathological and otherwise. In a paper of this scope we can only select a few of the most prominent.

The conditions upon which the blood pressure depends are four: First, the energy of the heart; second, the peripheral resistance to the blood stream; third, the elasticity of the arterial walls; fourth, the volume of the circulating fluid. It should be borne in mind that with one condition inactive, from disease, and another overactive, the blood pressure may be maintained at a normal level for a time.

Naturally first, among the pathological conditions which interest us, stands arteriosclerosis. We have been accustomed, I think, to invariably associate this disease with high blood pressure. While hypertension frequently appears as a symptom of arteriosclerosis there are other cases, fairly numerous, in which, with palpably sclerosed radials and temporals, the tension is practically normal. This is one of the conditions in which the trained finger will deceive us. It seems to be the consensus of opinion that arteriosclerosis, by itself, only raises general blood pressure when there is serious disease of the splanchnic vessels, or those supplying important organs.

Looking through the other end of the glass the pathologists tell us that long-continued hypertension results in a "strain hypertrophy" with ultimate degeneration of the arterial walls.

Rupture and aneurismal dilatation occur only when the arterial walls are diseased, since they are constructed to withstand any pressure that ever occurs in the body.

In diseases of the heart a knowledge of the blood pressure enables us, first of all, to apply stimulation intelligently. In a recent case of cardio-renal disease, the pressure, which had been continuously above 200 mm., fell to 100 mm. The patient felt fairly comfortable and the pulse was no more rapid than it had been on other occasions. The column of mercury, in a case like this, is like the steam-gauge before the engineer. The indications were clear and unmistakable; active stimulation. Later, with a pressure which has risen to 160 mm., I am relaxing the stimulation a little. With an excessive hypertension and a failing heart, the first intelligent move would be to relieve the tension until the heart could recover its footing.

In many diseases of the kidneys, especially chronic interstitial nephritis, there is nearly always a marked hypertension. A carefully maintained blood-pressure chart, in these cases, may be as enlightening as is the temperature chart in typhoid. A marked rise in pressure may be the

handwriting on the wall, which is to warn us of impending uremia. To say the least, we will give the patient the comforting feeling that something is being done.

Cerebral anemia, from any cause, will elevate blood pressure. In fact, the highest authentic records have been in this condition, or from compression, which, according to Janeway, elevates the pressure simply because it causes a mechanical anemia. In compression, the rise is least marked when the compressant is in the anterior fossa, and most marked when it is in the posterior.

A knowledge of the blood pressure in a case of compression from cerebral hemorrhage may lead us to ask ourselves what line of treatment we can attempt without doing positive harm. The hypertension, if left to itself, encourages further hemorrhage. If the pressure is lowered, a more serious anemia than already exists may follow. A middle course, which is reported to have given satisfactory results in the hands of competent men, is the operative removal of the compressing agent, upon which there is an immediate fall in pressure.

In pregnancy blood pressure is normally high. Anything above 160, with the wide cuff, however, should be looked upon as abnormal. A sharp rise would suggest the possibility of eclampsia, especially if associated with albuminuria. During labor there is a marked hypertension, which normally falls after the birth of the child.

In shock, blood pressure is at its lowest. The sensory nerve centers, which indirectly control the tonicity of the splanchnic vessels, have been over-stimulated to the point of exhaustion, and have lost their grip. Crile makes practically this distinction between collapse and shock; in collapse there is a sudden fall in blood pressure, which is amenable to treatment by stimulation; in shock there is a gradual fall in pressure, which is little affected by stimulations. With nerve centers already over-stimulated, drugs like strychnia may even do harm. The only remedy within our reach, which seems to be at all effective, is adrenalin chloride solution intravenously. (While shock, a condition with hypo-tension, should not properly appear in this paper, it nevertheless seems apropos.)

In the course of operative procedure, blood pressure is elevated by irritation of nerve trunks and stretching the sphincter ani. A serious fall may result from operations on the larynx, and section of nerve-trunks which are not previously "blocked" with cocaine. It is little affected by extensive external operations like a complete amputation of the breast, except that a marked depression may follow rough sponging, extensive blunt dissection, and strong retraction. Abdominal section causes a primary rise, followed by a gradual depression, depending on the

length of the operation and the degree of manipulation.

Among the anæsthetics, nitrous oxide causes a rise from asphyxiation. Ether causes a moderate and continuous elevation of pressure. When the mercury drops, there is danger ahead. Chloroform lowers blood pressure immediately, excepting during labor, which probably accounts for its comparative safety at this time. At least one of the dangers of the ether-chloroform sequence probably lies in the fact that the pressure, coming down from the elevation caused by the ether, is met by the depressing influence of the chloroform, which has the advantage of a flying start. This would suggest a danger, likewise, in chloroform for repair following labor.

In regard to the treatment of arterial hypertension, there is a great deal of honest difference of opinion. Should we attempt to lower blood pressure under any circumstances? If so, under what circumstances, and should the attempt be in the direction of a permanent reduction, or merely a temporary lowering, with the hope of relieving symptoms apparently due to the hypertension itself?

I am inclined to feel that the disrepute into which the sphygmomanometer has fallen among some men who have not taken the trouble to acquaint themselves with its merits and demerits, is due to the influence of a class of men who are given to use the instrument as a "Big Stick" to hold over the heads of the laity to drive them into their offices; who rush madly at the offending blood pressure whenever it presumes to rise above its normal level.

Hypertension is usually a compensatory process; an effort on the part of Nature to rid the circulation of a toxin, or to send blood where it will not go at ordinary pressure. On the other hand, continued hypertension means an overworked heart and degenerated arteries, with the concurrent, though vague, possibility of rupture or dilatation. Most of us have seen cases where we have attributed severe headache, vertigo, etc., to hypertension.

As to prophylaxis, there can be no difference of opinion. When a case comes to us, often for some other ailment, and we find a beginning hypertension, in an individual given to high living, too much tobacco, or some other variety of toxemia, who is snatching Mother Nature along by the arm, in a frantic effort to keep along with the procession, we are neglecting the patient and our duty if we do not advise rest, regulated diet, and increased elimination.

With an established hypertension due to some known cause which is not removable, I am now inclined to favor a conservative line of treatment, consisting, perhaps, of cathartics, sweats, potassium iodide, etc., combined with rest and light diet. Only when there are symptoms

which cause great discomfort, or which make the indications unmistakable, am I inclined to turn to the vaso-dilators and other remedies which are available although not always effective.

To summarize, in conclusion, to use the sphygmomanometer intelligently, and to criticize it intelligently, one should understand the instrument and know the sources of error to be overcome. The normal blood pressure, like the normal pulse and temperature, is a variable quantity, depending on several conditions. In various conditions with which the physician has to deal, a few of which are mentioned, the sphygmomanometer, if not absolutely essential to diagnosis and treatment, is a valuable aid, often revealing much of interest and importance which would otherwise be overlooked; its application in our practice will help in the direction of careful observation and precise methods. In the opinion of the writer, the treatment of hypertension should be conservative, since its etiology and pathology are as yet, not fully understood. In the hands of a man unacquainted with the principles upon which the usefulness of the sphygmomanometer is founded, this instrument may do harm rather than good.

## REPORT OF A CASE OF HERPES FACIALIS.

By ANDREW J. GILMOUR, Ph.B., M.D.,  
NEW YORK.

**E.** C., male, age 14. Occupation, delivery boy. Nativity, United States.  
*Family History.*—Grandmother, aged 66, is living and well. Father died from an operation on the tonsils. Mother died seven days after confinement, after giving birth to a child without a hand. This child died on first day. A sister, 15 years old, and a brother, 13 years old, are both healthy.

*Personal History.*—Measles when 5 years old. Has always been constipated; otherwise well.

*Present History.*—The patient was first seen on December 29, 1909. He had no diet out of the ordinary before December 25th, when he ate a large Christmas dinner of turkey. On the evening of December 24th, he complained of a toothache which came from the decayed stump of the first molar of the lower jaw on the right side, but has had no pain since. The patient complained of no itching or burning before the appearance of the rash.

His appetite was good until Christmas morning and fair throughout the disease. The patient took lamb chops, coffee and milk. Since the rash appeared on December 25th, the patient has felt "burning up," but has had no chills.

There has been no pain in the face, simply an itching, burning and feeling of tension.

On Christmas morning his grandmother noticed both sides of the face red and swollen and thought it was erysipelas, she also noticed a few small blisters, "cold sores," at one-half inch to the outer side of the left angle of the mouth.

On December 26th, patient had headache and vomited both morning and afternoon. There was slight anorexia on this day only.

It would appear from the description as given by the boy that on December 26th the area of the rash had increased to the size shown in the accompanying illustrations which were taken on December 29th. The patient's condition was practically the same the day before the picture was taken as upon that day. The edges were sharply defined from the surrounding skin. At first the vesicles were discrete, but since their first appearance they have united in some places to form large bulla.

*Physical Examination.*—Temperature 99.6, pulse 84, respiration 21. On the left side the entire cheek is covered by a patch of vesicles, the highest point of which is reached by less thickly crowded together vesicles at a point one inch in front of the ear on a line connecting the top of the ear with the tip of the nose. This patch extends forward beyond the middle line of the chin to a point corresponding to a line dropped from the right corner of the mouth. The patch extends downward to a line corresponding to the maxillary border over which there is a space three-quarters of an inch in breadth which is free from vesicles.

Below this free space and extending down the neck there is another patch of vesicles  $1\frac{1}{4}$  inches in diameter. On the neck, slightly below and a little behind this area are about 24 discrete vesicles. The vesicles in the center of the large patch have coalesced into several small bulla, but none so distinct as the large one on the right side of the face. There are a few vesicles on the top of the left ear, also a few on the neck, two inches behind the tip of this ear.

On the right side of the face, starting on the cheek on the lower border of the jaw at a point one inch behind the limit of the first patch described, a vesicular area  $1\frac{1}{2}$  inches broad extends backward and upward to the ear, except for a small free space one inch in front of the right ear, behind which free space is a smaller vesicular-covered area about the size of a twenty-five cent piece. The center of the larger vesicular area has become confluent, forming a bulla the size of a half dollar. The entire lower half of the ear, both back and front, is covered with vesicles. A small bulla has formed on the anterior surface of the ear. Under the tip of the chin is a small patch of vesicles. The upper

lip is free except for one vesicle at the right side. The lower lip has a few, almost healed vesicles at the center below the vermilion border, also there are a few on the vermilion border on the left side. In no place is the eruption purulent.



*Treatment.*—Local treatment: calamine and zinc lotion. Internal treatment: divided doses of calomel followed by manganese sulphate.

The patient was next seen on January 11, 1910, when he stated that on January 4th he noticed a small lump back of the angle of the left side of the jaw in front of the sterno-mastoid muscle; also that on January 8th, another small lump had appeared under the angle of the chin slightly to the left of the median line, and that they had not at any time been painful.

Physical examination shows a moderate enlargement of the submaxillary and submental glands on both sides. There is an enlarged gland in left anterior cervical chain at the level of the tip of the ear.

The posterior cervical chain on the right side is enlarged, but not on the left side. The patient has pediculosis capitis.

A few small crusts remain in front of the left ear near its tip, on the front lower half of the right ear, under the left side of the tip of the chin, to the right of the point of the chin, at the left angle of the jaw, and under the left border of the jaw one inch in front of its angle.

There are also a few crusts on the left cheek which are surrounded by a zone of slight inflammation.

One month later the writer was assured by the patient's grandmother and aunt that the glands had disappeared and his face had healed with absolutely no scarring.

The observation concerning the freedom from scarring was confirmed later by the author, but the glands were still slightly palpable. The remaining adenopathy is attributed not to the pre-existing herpes, but to the poor physical condition of the patient due to his unsanitary surroundings.

IS OUR HONOR OR REPUTATION IN  
DANGER.\*By A. M. MEAD, M.D.,  
VICTOR, N. Y.

**I**T seems to me it would not be out of place if we take a few minutes and by reflection and sober thought, look into our own makeup and our own lives, and see if we are really what we should be.

With this fast age, and devices to annihilate distance and to make time: with all the luxuries that we are inclined to look upon as necessities: are we living up to the oath we took when we graduated in medicine, at that time the proudest moment of our lives?

For fear you have forgotten, I will quote you a few lines:

"Into whatever houses I enter I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption" and at the close "While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art respected by all men in all times. But should I trespass and violate this oath, may the reverse be my lot."

Is that oath that Hippocrates gave us lived up to, or do you follow that of David Harum, "Do unto others as they would do unto you, but do it first."

Are we living up to the past and keeping the profession in the same rank where it has been, the noblest, most sacrificing profession known? Or are we placing it on purely a commercial basis?

You say times have changed. Yes. We well remember when the doctor bought very little medicine. In cities and large towns it was most all prescription work. Occasionally an agent would call to sample you and show their goods and ask you to remember their name when you wrote your prescription.

Not so now, the doctor stands in relation to agents as a lone lump of sugar to a nest of ants.

These agents will sell you, if you will buy, your tonics, elixirs and cough medicine, all in four-ounce bottles, labeled and name on label if you will only buy enough. He will figure it out to you how much cheaper it is.

Now, will you sell your honor for a four-ounce bottle and label?

For instance, if your calisaya bark, iron and strychnine is in a four-ounce bottle, will you hand that to the patient and say that will do, or will you uncork the bottle and add a little more strychnine for the aged or a little digitalis for the unbalanced heart? I fear not.

To your cough mixture, will you take the pains to add a little carbonate of ammonia, iodide of potash or digitalis? I fear not.

But you take that patient's money for doing the very best you can. Are you a true physician, or just a drug handler? Do you do your own prescribing, or does Parke, Davis & Co. or Sharp & Dohme, or some other firm hundreds of miles away do the work, and you take the money?

Are you strictly honest with your patient?

Do you ever send your patient to a specialist and then accept a commission?

Does your sign read Physician and Surgeon or Commission Merchant?

Do you remember meeting as a Society and talking over fee bill and requesting the Supervisors to increase pay for lunacy examinations? Did we object when the insurance companies cut their prices from \$5 to \$3 for examinations? In a few months they were put back to the old rate.

In our fee bill the price of a call was increased from \$1 to \$1.50 in the larger places in the county. And yet I am told by the agents of the industrial insurance companies they have no trouble in larger places (than Victor) to get physicians that will call at houses and fix an inspection blank for twenty-five cents and an industrial examination for fifty cents.

Does your fee bill read that way? Do those charges make you feel proud of your calling, or do you try to ease your conscience by thinking that is all your services in those cases are worth? Of course your inspection is good for nothing, and that examination is worth about the same. Are you trying to look after the health of the party or just after the twenty-five or fifty cents. In this transaction the professional part is lost and the commercial part is left.

Certainly times have changed, with the telephone to give a quick call and an automobile to get you there quick, the public have grown to feel that if they call on the phone they have about enough time to get to the front door and meet you.

With these distance annihilators there has come a condition that I cannot just describe; possibly if I call it a nerve storm you may know what I mean.

A strong desire to move fast and to keep at it.

How many physicians that have automobiles do their work in the morning and then in the afternoon take family or friends for a pleasure trip?

I have heard at our medical meetings physicians say, "I made several calls before I started for the meeting. Why I had so many I started with my auto and did not stop the engine until I got all around."

There was a case of nerve storm, if you please: hurried to his call; hurried through his call and hurried from his call.

Do you suppose he did good work? Or was it like the man that made six calls and sixteen

\* Read before the Ontario County Medical Society, January 11, 1910.



miles in a couple of hours, so as to get to the meeting. Were the calls worth the price charged to the patient? We are supposed to advertise only by good work.

What do you think of men who will stop another doctor's patient on the street and ask for the privilege of operating for adenoids, or calling at a house where the lady was wearing a "Mother Hubbard" gown and asking for an engagement when a physician was needed. Has modesty and honor all gone for commercial ends?

Are we to look upon the ill health of a patient as a farmer does on a crop of potatoes? Shall we look upon an accident as the farmer's wife does on a nice flock of poultry?

Shall we be boot licks for the wealthy? Fawning dogs to the poor?

It is for each to decide for himself whether he prefers to be in the business for the money he can earn and when he dies leave a fortune for his friends and lawyers to scatter to the four winds, and be forgotten.

For all he can take with him is a nice box and some sweet-scented flowers. They are left at the grave.

Or will he try and be like the doctor of the old school, a helper to the helpless, a friend to the friendless, a father to the orphans, and when life is at an end have a good name and pleasant memories to live for years.

I believe the physician should be "Worthy of his hire," and be able to lay aside enough for his own use and a little for his family.

In our late meetings it has been voiced that the physician himself is to blame for the general impression that he is not competent to do business in a business way. Would it not be well for us as a Society to see that a law be enacted so a physician's bill has a better standing.

Now the law protects the undertaker first of all, I suppose they call it necessity of death; for the grocer's and the butcher's bill they place next as necessities of life.

I believe the loaf of bread and morsel of meat to the hungry man are of no more benefit than relief and assistance to the sick and injured.

Ontario County first in laboratory, first in county hospital for tuberculosis, first in protecting physicians and their families.

Would that not be a good trio?

While I have tried to give you a danger signal, still I do not believe we are hopelessly near the abyss. As a profession we are trying to search out the cure of diseases to obtain prophylaxis, when possible.

I believe no class of men give equal amount of time and money for suffering humanity.

How well Longfellow in the "Legend Beautiful," in giving the work of the monk, has described the physicians' life work.

You remember the monk had a vision.

"Who upon his bended knee  
Rapt in silent ecstasy  
Of divinest self-surrender  
Saw the vision and the splendor."

But the convent bell was calling.

"Deep distress and hesitation  
Mingled with his adoration:  
Should he go or should he stay." \* \* \*

Then a voice within his breast  
Whispered, audible and clear,  
As if to the outward ear:

"Do thy duty; that is best;  
Leave unto thy Lord the rest!"  
Straightway to his feet he started,  
And with longing look intent  
On the Blessed Vision bent,  
Slowly from his cell departed,  
Slowly on his errand went.

At the gate the poor were waiting,  
Looking through the iron grating,  
With that terror in the eye  
That is only seen in those  
Who amid their wants and woes  
Hear the sound of doors that close,  
And of feet that pass them by;  
Grown familiar with disfavor.  
Grown familiar with the savor  
Of the bread by which men die!  
But to-day, they knew not why,  
Like the Gate of Paradise  
Seemed the convent gate to rise,  
Like a sacrament divine  
Seemed to them the bread and wine.  
In his heart the monk was praying,  
Thinking of the homeless poor,  
What they suffer and endure;  
What we see not, what we see;  
And the inward voice was saying:  
"Whatsoever thing thou doest  
To the least of mine and lowest,  
That thou doest unto me!"

### LACTIC ACID AND LACTIC ACID BACILLI.\*

By W. STANTON GLEASON, M.D.

NEWBURGH, N. Y.

**M**ILK soured with a special ferment has been an important article of food among the Turks, Romanians, Bulgarians, etc., for a great many years.

The first bacteriological study of the ferment was made by Gugaroff in the laboratory of Prof. Massol, of Geneva, who isolated a bacillus, which proved to be the most energetic lactic acid producer yet known, and was called the Bulgarian bacillus. Metchnikoff elucidated the idea that curdled milk prepared from the Bulgarian bacillus could be used in the treatment of disease.

\* Read before the First District Branch of the Medical Society of the State of New York at Middletown, October 28, 1909.

especially those conditions dependent upon auto-intoxication emanating from the intestinal tract. Dr. Michel Coheudy, in the Pasteur Institute, brought out the fact that the Bulgarian bacillus appeared in the stools in three to four days after being ingested regularly with the food; that it took about eight days to become properly acclimated in the intestine, and that when this had taken place would continue to live and thrive for twelve more days without another dose being swallowed, after that gradually disappearing, and that it produced no harm to the organism.

Investigation has shown that the effect of installing the lactic acid bacillus in the intestinal tract is to check the growth of saphrophytes or the bacteria of putrefaction and thereby lessening the possibility of septic auto-intoxication. Metchnikoff holds that the inhibitive action exerted is probably due to the lactic acid produced. Firrier and Martelly state that an acid-producing bacillus is able, in a saccharine medium, to arrest the growth of a putrefactive organism. Herschell holds that the lactic acid bacillus produces a toxine which is inimical to the growth of anærobes. The average practitioner must use judgment in selecting the best product to carry out successfully the application of this means of combating disease. At present we are able to obtain:

*First.* Ready soured milk.

*Second.* Liquid cultures in bottles for internal administration.

*Third.* Tubes of liquid ferment for souring milk.

*Fourth.* A variety of dry ferments in the form of tablets.

In giving the dry tablet, it is necessary to follow the dose with sweetened water or malt, as a saccharine solution favors the growth of the lactic acid bacillus. As it has been pointed out by Combe, the ordinary lactic acid bacteria (the bacteria of buttermilk) is incapable of resisting secretions of the digestive tract, and spontaneously soured milk is not the same as Bulgarian sour milk. Therefore the only reliable buttermilk is the milk soured by a culture of the pure Bulgarian strain. According to Metchnikoff the internal administration of the Bulgarian lactic acid bacilli, causes the formation of lactic acid in the intestinal tract, which produces an antiseptic action checking intestinal putrefaction, a topical action on diseased conditions of the intestine, also a constitutional effect is brought about due to the absorption of lactic acid. Metchnikoff advises the lactic acid ferment in gastroenteritis, green diarrhœas of infants and enterocolitis. Also he suggests its use to offset intoxication of the system in such conditions as cirrhosis of the liver and in nephritis; and in the type of cases characterized by intestinal fermentation, as eczema, urticaria and furunculosis. In this country and abroad much interest has been shown in the application of Metchnikoff's deductions. In the treat-

ment of diarrhœal diseases of infants and young children, the reports are as a whole favorable, especially where the pure Bulgarian culture has been used. The fact having been well established that the lactic acid bacillus inhibited putrefactive bacteria in the intestinal tract, investigations were made to determine whether a similar action might not be exerted on pathogenic germs in other parts of the body. Dextrose broth was found to be the right medium used with calcium carbonate. Dr. Holbrook Curtiss used the cultures carefully and successfully in sinus and nasal conditions. In atrophic rhinitis, 88 per cent. showed decided improvement. A large proportion of frontal sinus cases were helped. The treatment of ethmoiditis and antrum trouble proved most satisfactory. The best results were achieved in otitis media, where the otitis complicated diseases of the nose and accessory cavities.

My personal observations in general practice in the use of this remedy in the adult have not always been conclusive. I can, however, report one case in which the use of the lactic acid ferment was a powerful factor in establishing a cure. A vigorous young man of previous good health was affected with subacute diarrhœa of prolonged and unusual intensity. Through diet, medication and rest only temporary relief was obtained. The diarrhœa persisted, the stools averaging fifteen daily. The patient lost flesh and vigor. Illumination of the colon disclosed a congested mucosa punctated with minute ulcerations. Fœcal examination showed a large flow of colon bacilli with streptococci and staphylôcocci. Finally all medication was stopped except nitrate of silver irrigations; under this treatment the diarrhœa became more amenable. The irrigations were gradually withdrawn and Metchnikoff's lactic bacillary tablets in a sweetened media in four-hour doses was administered. This plan was followed carefully for several weeks in diminishing dosage, the stools being less and less frequent, until finally they became consistent and normal.

It has appealed to me that the rapidly progressive weakness of our typhoid cases after the middle of the second week was due to three conditions: First, toxæmia dependent upon the bacilli of Eberth. Second, insufficient nourishment to meet the increased waste of the system. Third, toxæmias due to saphrophytes, or the bacilli of putrefaction. The first condition, the toxæmia due to the typhoid bacillus, we hope may soon be overcome by vaccine therapy. Let us distinctly understand there is an emphatic difference between saphrophytic or putrefactive bacteria in the intestinal tract and the specific bacteria of typhoid. The second condition, insufficient nourishment, I strive to combat with the use of raw eggs in conjunction with the orthodox milk. The third condition, toxæmias due to saphrophytes or the bacteria of putrefaction, can be met with the pure lactic acid bacilli. This

method I carefully carried out in the hospital ward with eight cases of severe typhoid; beginning the treatment approximately at the middle of the second week, so as to prop up the weakened barriers of the system against increasing auto-intoxication. There is a question whether our patients, in a severe type of typhoid, after the second week of fever are not underfed. Aside from the weakening effects of the fever assimilation is low, and from the nature of the average nourishment there exists a state of semi-starvation. The triple line of defense mentioned by Combe against auto-intoxication, the liver, intestinal mucosa, and such glands as the suprarenals and thyroid, are so weakened in the second week of fever that their protective action against intestinal toxins is reduced.

To hold the patient's strength I gave one raw egg every six hours, dropped in a little water and taken whole. Of course, the usual milk diet was continued unless curds were present in the stools; in such an event the milk was peptonized or omitted. The lactic bacillary tablets were given to overcome putrefactive bacteria, which must be greatly increased in such conditions of debility; and also given to take up the defense of the system against impending toxæmia. Buttermilk, in my experience, is not popular with typhoid patients. Under this treatment the temperature curve in the cases under observation was lowered, abdominal distention gradually disappeared, the patients were manifestly more comfortable and convalescence unusually rapid. The result of my investigations were favorable to a continuation of this safe means of fortifying the system against toxins from mixed sources. We hope for successful vaccine treatment of typhoid, but until that comes we can look for reasonable asepsis in the intestinal tract through the agency of the lactic acid bacillus. As we know the lactic bacillus is inert against typhoid germs, but it will evidently destroy the putrefactive flora of the intestines. Metchnikoff holds that the Bulgarian lactic bacillus will thrive under high temperature.

## LUMBAR PUNCTURE IN GENERAL PRACTICE.\*

By NELSON G. RUSSELL, M.D.,  
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IN considering any procedure from the point of view of the general practitioner, the question of time and practicability must play an important part in the argument. The value of lumbar puncture in diagnosis and therapeutics is too well fixed to require comment, but how much one may get from this procedure in a short time and without special training, seems to be entitled to some consideration. In looking over most of the standard books on diagnosis, one fails

to find any very specific information in regard to the value of the examination of the cerebrospinal fluid, and certainly most of our students go forth with the idea that it is a means of diagnosis to be employed by the specialist, rather than by the general practitioner. If a diagnosis is to serve its best purpose, it must be made early, and at a time when the patient is in the hands of a general physician, and if definite information of this kind is available early it will clear up many cases, such as tuberculous meningitis which we often see classed as typhoid fever, or an apical pneumonia which gives a clinical picture of meningitis.

The technique is quite simple. All one needs is a stout needle about the size usually used for exploring the chest, and about three inches in length. It is a little better to have one with the tapered point rather short so that the anterior meninges may more easily escape injury. The point selected for the introduction of the needle may be the second, third or fourth lumbar space, the usual landmark being the highest point of the iliac crests. A line drawn directly across from one side to the other about locates the fourth space. After the skin is thoroughly scrubbed with an antiseptic soap, the point selected may be marked with tincture of iodine, which serves as a splendid skin antiseptic, and also to mark the point for puncture. For one not accustomed to the introduction of the needle, I think it is wiser to introduce the same straight in the middle line, directly perpendicular to the surface. Following the frequent advice given to point the needle upward causes it to strike the bone very much more often than it will if it is directed straight inward. The only objection to using the median line is the tough interspinous ligament which must be penetrated. This seems to me to be less difficult than to judge the proper angle when the needle is introduced at the side. After passing through the subflavous ligament, there is felt a sensation of lessened resistance, when the point of the needle enters the canal. The fluid normally drops rather slowly, and an idea of the tension may be gotten from the character of the stream. This may be estimated accurately by the use of the manometer, but that seems to be beyond the scope of the general practitioner. If the fluid fails to come when one feels fairly confident that he is in the canal, a wire may be introduced through the needle to make sure that the lumen is free, but suction by syringe is not a safe thing to resort to. The amount necessary to be drawn upon examination need not exceed ten to twelve c.c., which seems to be well within safe limits.

The examination of the fluid may be considered under the head of, first: the pressure under which it is obtained; second, its coloration; and third, cyto-diagnosis. The bacteriological findings and the chemical examination.

*Pressure.*—The importance of pressure seems

\* Read at the annual meeting of the Medical Society of the State of New York, January 25, 1910.

to be rather limited on account of the great variation of the individual, and it may be affected by position of the head, position of the body, cardiac pressure and respiratory activity. As a general rule, however, increased pressure accompanies inflammatory disturbances, and appears to a marked degree in tumor conditions, and occasionally in abscess of the brain.

*Coloration.*—When possible it is wiser to compare the fluid in the test tube with a similar tube containing distilled water. By this simple means one may occasionally detect a slight cloudiness, which would otherwise be overlooked. The normal appearance may be altered by the admixture of blood from injured vessels at the time of the operation. This blood may be recognized by the fact of its settling to the bottom of the tube and leaving the clear fluid above, whereas discoloration of this sort due to old hemorrhage, remains permanent. In cases of suspected hemorrhage or embolism, the finding of blood-stained fluid will serve to clear up the matter and guide one more definitely in the treatment. As a rule turbidity is due to cells, although chemical change may possibly cause it. In the conditions of mild irritation the fluid is practically clear. In tuberculous meningitis it may be clear with a slight opalescent appearance, or quite turbid. In septic meningitis it is always turbid.

*Cyto-Diagnosis.*—The number of leucocytes may be quickly ascertained by using the Thoma Zeiss counting chamber. The fluid if uncontaminated by blood may be examined undiluted, counting the number of cells in 4,000 small squares. If there are any red cells present it is safer to dilute the fluid with an equal quantity of 1 per cent. acetic acid, and proceed as in counting the leucocytes in blood. If a Turck chamber be used, 4,000 squares may be counted from two drops, taking 2,000 each time. Normally there are about two to four cells per c.m.m. In the conditions of irritation under which may be classed alcoholic meningitis, tabes dorsalis, paresis, superficial gummata, insular sclerosis, etc., we find an increase running from ten to fifty or more cells. In tuberculous meningitis the increase varies from slight (as seen in two or three cases with only ten to twelve cells) to 200 or more. In septic meningitis the count runs very high, up in the thousands. It is possible, using the counting chamber, to make a rough differential count, but a differential count may be done more accurately by making smears from the centrifugal sediment. The sediment is spread on the slide in the usual manner and stained after fixing with saturated bichloride solution, with methylene blue, or thionin. In this way the different types of leucocytes can be readily distinguished and classified. In the conditions of irritation nearly all of the cells are lymphocytes or endothelial cells (which predominate in tumor conditions). In tuberculous meningitis lymphocytes predominate, and although we may have a

considerable number of polynuclear cells, usually not more than 40 per cent. In septic meningitis nearly all of the cells are polynuclear, 70 per cent. or over. In the condition of brain abscess which does not communicate directly with the cerebro spinal space, there seems to be evidence of irritation as well as septic condition, so that if we find a relatively large number of polynuclear cells without bacteria being present this condition may be considered.

*Bacteriological Findings.*—A similar smear may be stained in the ordinary way for tubercle bacilli, one with Grams stain, one with any other ordinary stain. In this way it is very easy to detect a pus organism, pneumococci, meningococci, colon bacilli, or any of the other commoner organisms. The detection of tubercle bacilli is, I am afraid, rather beyond us in most cases, although a good man with a good laboratory outfit is generally able to find them. Fortunately, however, the clinical picture with the cell count is generally sufficient for diagnosis in this condition.

With the exception of those diseases in which we have a definite organism as a causative agent, the most we can expect from an examination is to put our case in a certain class. The following cases may be given as briefly as possible and will perhaps illustrate this point:

A woman of thirty-one admitted to the hospital about two weeks before the time for her confinement with evidences of eclampsia. The uterus was emptied, the patient ran an unfavorable course and died. There was no reason at any time to suspect a condition other than ordinary eclampsia. Lumbar puncture done post-mortem simply for the practice, produced a turbid fluid, which on counting showed a marked increase of leucocytes, practically all polynuclear. The stain smear showed numerous meningococci within the cells. This, with the pathological findings, showed the case to be one of epidemic cerebro spinal meningitis.

Second, a case of a child, two and a half years old with a rather vague history of digestive disturbance and vomiting for nearly three weeks, and up to the day before lumbar puncture was done there was no other evidence of any abnormal cerebral condition. On that day the child showed some rigidity, some sluggish action of the pupils, exaggerated reflexes, and enough other evidences to make the diagnosis of meningitis fairly positive. At the time the fluid from the spinal canal looked almost clear, but when compared with distilled water, showed a slight turbidity. The leucocyte count showed 164 cells per c.m.m., about 80 per cent. of which were lymphocytes. Although there were no tubercle bacilli demonstrated after a considerable search, I think there could be no hesitancy in making a diagnosis on these findings of tuberculous meningitis. The point I wish to make in this case is that the continued vomiting, regardless of the amount or kind of food taken,

might have suggested investigation of the cerebro spinal fluid earlier and given a more intelligent understanding of the case.

Third, a gentleman of about sixty gave a history of having been injured in the head two years prior to coming to the hospital and having had persistent headache. For a week or so immediately before coming to the hospital his mind seemed rather dull and he complained of a great deal of pain in the right side of the abdomen. Examination at the hospital showed marked rigidity of the whole right side of the abdomen, a moderate degree of fever, and a marked leucocytosis. The picture was so clearly of right-sided abdominal trouble, with a fairly marked septic condition, that surgical interference was considered advisable. Lumbar puncture was done to complete the examination and the resulting fluid gave a leucocyte count of nearly 300 cells, slightly more than half of which were lymphocytes. Notwithstanding the almost entire absence of definite symptoms of meningitis, a diagnosis based upon these findings was made and confirmed at autopsy some seven or eight days later. The condition in the right side proved to be only a mild cholecystitis.

A rather confusing case was that of a young man of twenty-two, who came to the hospital with lobar-pneumonia. He later developed an empyema which was drained. The patient apparently made a good recovery and went home. He returned some six weeks later, complaining of marked weakness and a very severe headache. Somewhat exaggerated reflexes but no paralysis. The count in this case was 156 cells, 60 per cent. of which were polynuclear. A careful search through the same specimen failed to show any organisms. The note on the history at the time was "this count seems too high for tubercular condition, and too low for septic condition." The condition proved to be brain abscess, fairly near the surface of the brain, and this combined with irritation of pus elements, very readily explains the findings.

In several children apparently with the symptoms of tubercular meningitis, I have gotten extremely low counts, four ranging from eight to fifteen cells. One of these cases was a boy of eight, who had been sick for some days and was perfectly conscious, but with rigidity of the neck and extremities. I withdrew about 25 c.c.'s of fluid, which contained eleven lymphocytes per cubic millimeter. I was never, however, able to satisfy myself as to the exact nature of the condition—but the child improved almost from the moment the fluid was withdrawn and made a very complete recovery.

In two cases of pneumonia, in children with marked evidences of cerebral irritation, meningitis was practically excluded by the absence of any increase in number of cells, and the cases a little more intelligently handled, I think, on that account.

My efforts with cases of tabes dorsalis and

other conditions of this nature that supposedly give an increase of lymphocytes, have not been particularly satisfactory, for the reason that so many of the counts were so near the border line that I should hesitate to rely upon them, were the diagnosis much in doubt.

While I have merely touched upon the subject, this much is offered as an argument in favor of a more general use of lumbar puncture and cytodagnosis by the general practitioner in all cases in which there is the merest suspicion of a cerebro spinal disease. While there has been an occasional accident reported, they seem to be very remotely possible, if one allows only a small amount of fluid to escape and avoids using a syringe altogether. Harm may be done in a recent hemorrhage, in which case the lessened pressure would allow a further flow of blood, but even in such cases ordinary caution would prevent a serious result. Occasional nausea or even vomiting may follow withdrawal of fluid, but I do not recall that I have ever seen it, and fortunately have had no complaint from the patients I have punctured.

Cases of epidemic cerebro spinal meningitis really demand a definite diagnosis early to insure any kind of successful treatment, and neglect of this diagnostic procedure here would be so serious that I think it is one of the strongest arguments we have. I think the case of eclampsia I reported makes this point rather clear.

Again as a therapeutic measure, lessening the pressure in the spinal canal, it has been productive of so much benefit in relieving symptoms or actually curing disease in such a variety of conditions that one hardly feels justified in neglecting it. The literature upon the subject is full of reports of success with this treatment in a large variety of conditions. There is no doubt that many of the symptoms of meningitis are at least temporarily improved by withdrawing fluid, and in some cases, apparently cured. It is recommended in local meningitis following ear conditions, in the cerebro-spinal type of typhoid, a relief of hydrocephalus, with alleviation of pain from chronic neuralgia following zoster, in the headache secondary to syphilis and headaches of Bright's disease. It affords relief to the pains of tabes, occasionally relief in Huntington's chorea, and quite frequently in epilepsy. While some of the symptoms of brain tumor can be relieved by withdrawing the fluid, serious symptoms seem to result more often in this than in other conditions. Symptoms, such as tinnitus, vertigo, and those conditions due to pressure of fluid in the internal ear are at times markedly improved.

From an exact scientific point of view, lumbar puncture as an aid in diagnosis, or as a therapeutic measure may not have made a place for itself, but as an aid in general practice, it seems to me that it merits a very much more prominent place than it has yet attained.

## BLOOD EXAMINATION AND PRACTICAL DIAGNOSTIC POINTS FOR THE GENERAL PRACTITIONER.\*

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**A** PROPER examination of the blood is in all cases useful, and in some indispensable for diagnosis. A full and scientific examination reveals certain facts having more or less clinical value but the complicated determinations of coagulation time, specific gravity, alkalinity, freezing point, osmotic properties, etc., have no place in the hands of the busy general practitioner who must find the greatest number of facts essential to aid his clinical knowledge of the case in the shortest possible time. We will, therefore, consider the technique of the routine blood examination that the physician needs in his work and the interpretation of the blood picture in certain disease conditions in which the examination is of special value.

In presenting this paper, I have given very little that is original, but have selected the best adapted methods of procedure and the most useful hints for diagnostic purposes from various authorities.

The blood is a red, slightly alkaline, albuminous fluid, which has as its office the distribution of oxygen to the tissue and the removal of carbonic acid and waste products from the body cells.

The elements composing the blood are red blood cells, white blood cells, blood platelets and blood dust which are suspended in plasma or a fluid composed of serum albumin, serum globulin, fibrinogen and various inorganic salts.

The red blood cells assume a biconcave form in the healthy condition and are not nucleated except in certain disease processes. Normally they number from 4,500,000 to 5,000,000 per c.m.m.

The white blood cells contain nuclei normally which are surrounded by a somewhat varying amount of cell protoplasm. This protoplasm contains granules which stain differently in different cells and are, therefore, of considerable importance in the classification of leucocytes.

The white cells vary in health from 5,000 to 10,000 per c.m.m. Usually there are about 7,500 per c.m.m.

The blood platelets are small oval or spherical bodies having no definite structure but when stained, the central part takes a deep nuclear stain while the periphery is lighter in color. The platelets vary from 200,000 to 600,000 per c.m.m.

Blood dust or hemokonia is found in both normal and diseased blood. It appears as small

round colorless granules which correspond in size and shape to small fat droplets but are insoluble in alcohol and ether and do not stain by osmic acid.

### A TEST FOR THE RECOGNITION OF BLOOD.

It is essential at times for the physician to know if the stomach contents, vomitus, urine or feces contain blood. The recognition of the red blood cells under the microscope is, of course, a positive test but the cells may be so changed by the body secretions that it is impossible to be sure of them. In such a case a simple and delicate method is the guaiac test which will detect one part of fresh blood in several thousand of water.

Prepare an aqueous solution of the substance suspected of containing blood and add to it a few drops of freshly prepared tincture of guaiac diluted to a sherry color. This will give a milky precipitate. Now add a few drops of peroxid of hydrogen and in the presence of blood a blue color will soon be produced.

The fresh tincture of guaiac can be prepared in the office in a few moments by adding some alcohol to a little powdered guaiac, shaking and allowing to stand.

### HEMOGLOBIN ESTIMATION.

Hemoglobin is crystallizable proteid in the red blood cells probably in combination with the nucleoproteid of the stroma. It is a compound of one of the histon group, globin with the iron bearing substance haematin which amounts to .42 per cent. It is an important property of hemoglobin to form compounds in the lungs with oxygen called oxyhemoglobin and to set free this oxygen again in the tissue when the partial pressure is reduced.

The determination of the percentage of hemoglobin in the blood is as important as a red blood cell count and is far less complicated.

Among the more common forms of apparatus for hemoglobin determination may be mentioned the hemoglobinometers of Dare, Von Fleischl, Gower and Tallquist. All of these depend upon the comparison of the diluted or undiluted blood of the patient with a color scale. The method of Von Fleischl is probably the most accurate but the apparatus is expensive and must be used in artificial light. During an investigation within a few years at the Pathological Institute of New York concerning the best method for the routine estimation of hemoglobin, it developed that the simple, very inexpensive Tallquist scale could be depended upon to give readings within 10 per cent., and was, therefore, quite accurate enough for ordinary clinical work. The apparatus consists merely of a little book filled with special blotting papers and a color scale reading in tens from 10 to the normal 100 per cent. Following the few simple directions enclosed with it, one can make a dependable determination of the hemoglobin at the bed-side in only a very few moments.

\* Read before the Medical Society of the County of Dutchess at Poughkeepsie, N. Y., April 13, 1910.

#### ENUMERATION OF RED BLOOD CELLS.

For this purpose the Thoma-Zeiss hemocytometer is used. It consists of two mixing pipettes, one for red and one for white cells and a counting chamber. The pipette for red cells consists of a stout glass tube having a capillary bore expanding above into a small chamber. The capillary portion is so calibrated that if the blood is drawn up to the mark 1, and then the diluting fluid is drawn to the mark 101, the dilution is 100. Drawing the blood to the mark .5, and then sucking in the diluting fluid to 101 gives a dilution of 200 which makes counting somewhat easier. The counting chamber consists of a thick glass slide upon which two glass plates are cemented in such a way that the smaller one in the center is surrounded by a moat. The inner plate or disk is ruled into a millimeter square and this is divided up into 400 smaller squares each with an area of one-four hundredth of a square m.m. The depth of the inner plate is one-tenth mm. below that of the cover glass. Thus when we have this inner plate exactly covered with a layer of blood that does not overflow into the moat and overlaid by a special cover glass, each small square represents an area of one-four thousandth of a cubic millimeter.

The blood for all our work is obtained by sticking the finger or preferably the lobe of the ear to sufficient depth to secure a free flow of blood. Care must be exercised not to squeeze the part so as to change the proportion of corpuscles and serum and also in drawing the blood and diluting fluid exactly to marks on the pipette. At once mix the contents by shaking vigorously for one minute.

For a diluting fluid a solution of sodium sulphate 12 gms. to 100 c.c. of aq. dist. colored with a little gentian violet is satisfactory or the more complicated Toison's or Hayem's fluid may be used with advantage. In filling the counting chamber after carefully mixing the contents of the pipette again by shaking, the first few drops are allowed to escape, then a small drop of the fluid is placed on the inner plate and the thick cover glass is carefully lowered on it.

It is not advisable perhaps to go into the minute technique for counting the red cells which can be found in any text-book on the subject and beside each operator has his own favorite method.

A simple form of computing the number of cells per c.m.m. after having the average number in one small square is to multiply the number by 50,000 if the dilution has been 1 to 200 or by 25,000 if the dilution has been 1-100.

#### COLLECTION OF BLOOD FOR WIDAL EXAMINATION.

In collecting blood for a Widal examination a little capillary tube with a bulb expansion holding three or four drops of blood is best. If this is not at hand two or three drops of blood

are allowed to dry in one place on a clean glass slide without spreading.

#### ESTIMATION OF WHITE BLOOD CELLS.

For enumerating the white blood cells the same counting chamber is used with a smaller pipette giving a dilution of 1-10 or 1-20, the latter seems to me preferable especially when any considerable amount of leucocytosis is present for it renders counting easier. The diluting fluid must contain about 1 per cent. of acetic acid to destroy the red cells which would be in the way in counting the leucocytes. Türk's fluid is recommended for this and it contains 1 per cent. of acetic acid in water with a small amount of gentian violet to stain up the nuclei thereby rendering their recognition easier. The number of leucocytes in the entire 400 small squares is counted and the result is multiplied by 200 if the dilution is 1-20 or by 100 if the dilution is 1-10 to give the number in 1 c.m.m.

#### PREPARATION OF SMEARS FOR STUDY OF CELLS AND DIFFERENTIAL COUNTING.

If the blood still flows freely from the first puncture made, an alcohol cleaned glass slide is to be lightly touched to the summit of the drop of fresh blood. Lay it on a table, blood side up and spread the drop out into an even film one cell in thickness by drawing across it the end of another clean glass slide or else use a special spreader. The film dries quickly and is then ready for staining.

In my work, Hastings' modification of the Jenner stain has been the most satisfactory. It is made up with methyl alcohol so the blood needs no previous fixation. The film is covered with the stain for two minutes, then two or three drops of distilled water are added and the staining allowed to go on for four minutes longer. Wash off with distilled water, blot, dry and examine with the oil immersion lens. Other excellent stains are Jenner's, Wright's and Ehrlich's tri-acid.

In the stained smear the red cells appear as circular disks with a central pale area, gradually shading off to a deeper color at the periphery. The diameter of the average red cell is 7.5 micra. The stroma remains unstained, the hemoglobin alone taking the color. The normal cell is orthochromatic; that is, it stains with the acid dyes as eosin, and does not take any portion of the stain from the basic group as methyl or azure blue. The circular form of the red cell is usually well preserved but some may be slightly oval.

The white cells are composed of lymphocytes or small mononuclear leucocytes which make up 20 to 30 per cent. normally and are derived from the lymphoid tissue of the body including the bone marrow. These cells vary from about the diameter of a red cell to twice its size and consists of a narrow deep blue staining cell body sur-

rounding a relatively large, round, nearly concentric, lighter blue staining nucleus.

The large mononuclear leucocytes are two or three times the diameter of the red cells with large oval eccentric deep blue staining nuclei. The surrounding cell body is abundant and stains lighter than the nucleus. These cells form only about 1 per cent. of the total leucocytes and are produced in the bone marrow.

Transitional forms usually make up 2 to 4 per cent. of the white cells and they resemble the large mononuclears except the nuclei show a tendency to take a horseshoe or kidney shape.

The polynuclear leucocytes are sharply defined from the preceding types by the irregular S-shape form of the blue-staining nucleus and by the small neutrophilic granules in the cell body which stain by the acid dyes. These cells are formed in the bone marrow from the myelocytes and are present in the circulating body from about 65 to 75 per cent.

The eosinophiles are a little larger than the red cells and are characterized by a basic nucleus and coarse, highly refractile granules in the cell body which stain strongly by the acid dyes. These form .6 to 4 per cent. of the leucocytes in the blood.

Basophilic cells or mast cells form only about .5 per cent. of the white blood cells and are about the size of a red cell. They contain coarse, deep-blue staining granules.

In disease we may encounter beside a large increase of the normally existing white cells certain other varieties never found in the healthy blood.

Myelocytes occur in certain conditions that we will mention later. They are large cells about the size of a large mononuclear, containing neutrophile, eosinophile, or basophile granules. Irregular types of white cells and degenerated cells without granules and well defined outlines occur in advanced anemias and leukemias.

In anemic conditions we also find certain anomalies in the red blood cells. The cells may be much larger than normal and in that case they are called megalocytes. If they are smaller than the normal erythrocytes, they are called microcytes. At times they are irregular and misshapen, the so-called poikilocytes. The red cells may also be nucleated in conditions of anemia where the demand for red cells in the circulation exceeds the finished product, and in that case they are given out in the incomplete stage or nucleated. According as their size is normal, large or small, they are called normoblasts, megaloblasts, or microblasts.

#### COLOR INDEX.

The color index is an aid at times in differentiating between certain varieties of anemia and leukemia and we can well afford to devote a few words to it. Normally the amount of hemoglobin corresponds to the number of red blood

cells. Thus each red cell contains a certain amount or percentage of hemoglobin called the hemoglobin value or color index. If the average number of red cells to the c.m.m. is taken as 5,000,000 or 100 per cent. and the hemoglobin is 100 per cent. then the color index is 100-100ths or 1. So long as the hemoglobin and red blood cells decrease proportionately as 70 per cent. of red cells and 70 per cent. of hemoglobin, the color index remains the same 1. If the hemoglobin is destroyed to a greater extent than the red cells the value is less than 1, as 80 per cent. red cells and 40 per cent. hemoglobin and the index is expressed as 40-80ths or .5. On the other hand, if the cells have decreased more rapidly than the hemoglobin the value of the latter is greater than 1 as 50 per cent. of cells and 60 per cent. of hemoglobin and the color index is 60-50ths or 1.2. In the majority of anemias the hemoglobin is reduced more than the red blood cells and therefore the color index would be low. In pernicious anemia, however, there may be a large loss of cells with a small loss of hemoglobin and consequently a high color index.

Now, that we have considered the ordinary methods of examination of the blood and the nomenclature of the various cells, we will take up a few of the composite pictures in certain disease conditions that may aid us in arriving at a proper clinical diagnosis.

Since the blood is a tissue common to all the organs of the body it is reasonable to suppose that it will show alterations in its composition when any of these organs are diseased. Some of the changes that occur in the blood due to disease of the organs, toxic or infectious influences brought to bear upon it are characteristic and easily demonstrated while others lack specific qualities or else in our present state of knowledge are not recognized. The agglutinating substances found in the blood during certain infectious diseases are examples of alterations in composition which are not definitely understood. The phenomena of agglutination, however, may become very useful if the conditions of their occurrence in the blood are carefully taken into consideration.

#### POLYCYTHEMIA.

This condition of high red cell count was first described by Rendu & Widal in 1892 and by Osler in 1903, and is sometimes known as Osler's disease. It is thought to be caused by a hyperplasia of the erythroblastic bone-marrow.

Aside from the enormous splenic enlargement we will not consider the clinical side of the disease.

The red blood cells number usually above 8,000,000 and often go as high as 10 to 12 million per c.m.m. The hemoglobin is from 120 to 200 per cent. The leucocytes are also increased as a rule—about one-half of the cases



showing over 20,000 per c.m.m. Nucleated reds are also frequently encountered.

#### ANEMIA.

The expression anemia denotes deterioration in the quality of the blood which may affect either the red cells or hemoglobin or both.

For our clinical consideration anemia may be divided into two important classes, primary anemia and secondary anemia. The primary anemias are impoverishments of the blood without demonstrable causes as in pernicious anemia, leukemia and chlorosis. Secondary anemia includes conditions wherein the blood becomes impoverished as the result of a known cause as malaria, cancer, tuberculosis, diabetes, etc.

Generally speaking every form of anemia is secondary as some cause must exist. Sufficient evidence is present, however, in some varieties of anemia to warrant us in saying that it is due to a primary disease of the blood-forming organs. It must be remembered that secondary anemia may simulate closely and is often not to be distinguished from primary anemia and anemia identical with that of the pernicious type may follow the more severe secondary forms, therefore a diagnosis of pernicious anemia is to be made only after careful exclusion of some tangible cause and repeated blood examinations. It is well in most cases if no cause can be ascertained for a severe anemia, to examine the patient's stools and institute proper treatment for intestinal parasites. More than one beautiful case of so-called pernicious anemia has cleared up nicely after such a procedure.

#### SECONDARY ANEMIA.

The variety of causes of this form of anemia cannot be taken up here but merely the blood picture.

Usually the hemoglobin and red blood cells are reduced proportionately and, therefore, the color index is about normal. The cells rarely go below 2,000,000 per c.m.m. except in parasitic conditions when the red count may sink to 1,000,000 or even less. A differential point, however, is the usually accompanying moderate leucocytosis and low color index in parasitic conditions. The stained smear in secondary anemia shows a pallor of the red blood cells with the irregularity and deformity known as poikilocytosis. Microcytes and macrocytes are present but there is an absence of nucleated reds unless the anemia is very severe. Occasionally basic granular degeneration is seen.

#### MALARIA.

So many times the diagnosis of malaria is made without being confirmed by finding the plasmodium malarie in the blood that it seems worth while to devote a few words to it. Generally it is best to make a smear of the patient's blood on a glass slide in the usual way and stain with Jenner's or Hastings' stain. We should

look for red cells larger and paler than normal, containing large or small pale blue staining bodies depending upon the age and numerous reddish-brown pigment granules. Some of the organisms may be as large as the cell itself. Care must be exercised not to mistake blood platelets for the plasmodium; the former may be so placed on top of a red cell as to closely resemble one, but no pigment granules are seen, nor has the red cell been changed in size and coloring.

#### CHLOROSIS.

The chlorotic type of anemia is characterized by a relatively high red cell count with a low hemoglobin per cent. therefore a low color index.

The red cells are normal or else slightly undersized, pale and vary from 3,500,000 to 4,500,000 per c.m.m.

Poikilocytes and nucleated red cells are found only in severe cases and granular degeneration is less common than in other forms of anemia. Of course the blood picture is not diagnostic but must be taken together with the somewhat characteristic clinical signs.

#### ANEMIA DUE TO LEAD POISONING.

This type of anemia does not differ from the varying grades of secondary anemia but the changes that take place in the red cells are of great interest especially as they can be easily produced in animals experimentally. The alterations are of two important kinds—granular degeneration and polychromatophilia. The granular degeneration is more abundant in lead poisoning than in any other anemia and in a severe case the majority of red cells may contain small blue staining granules. The polychromatophilia or basic purplish staining property of the red cells is usually well marked.

#### PERNICIOUS ANEMIA.

The determining factors in the production of this disease are not definitely known. The blood changes are often exceedingly characteristic and at other times hard to differentiate from a secondary anemia.

The hemoglobin is always markedly reduced—50 to 10 per cent. during the active stage, but during the remissions rises to 60 or 70 per cent. and may remain high for quite a long period. The red cells may fall to 1,000,000 per c.m.m. or lower, and consequently we have a high color index.

The stained blood smear is of special interest. For we find from 50 to 75 per cent. of the red cells changed from the normal diameter.

Large and small cells are found in great numbers. The large macrocytes are especially prominent, and the nucleated reds are numerous. The large variety or megaloblast is significant. During the active stage of the disease the nucleated red cells may be as high as 1,000 per c.m.m. Poikilocytosis and degeneration are found in

the cells. Myelocytes are present in small numbers, and the red cells are colored deeper than normal.

#### LEUKEMIA.

The exciting factors in leukemia are unknown, although the general appearance in the acute variety is that of an infection. It is a disease characterized by hyperleukocytosis, a proportionate reduction in both hemoglobin and the red blood cells, the occurrence of nucleated reds and the presence of myelocytes.

It is one condition presenting a blood picture which is absolutely diagnostic of the disease. It is divided into lymphatic and myelogenous, and these in turn may run an acute or chronic course. In both these diseases there may be marked visible glandular enlargement and enlargement of the spleen; but in some few cases both are absent.

In myelogenous leukemia the blood is often opaque and resembles thin pus on puncture. The white cells are enormously increased and vary from 100,000 up to 500,000 or more per c.m.m. A progressive anemia ensues as the disease advances and the red cells number usually from 3,500,000 to 2,000,000 or less. The hemoglobin is also reduced. Nucleated reds are to be found in large numbers also other changes indicative of a grave anemia.

The distinguishing feature of this variety of leukemia is the high percentage of myelocytes present amounting to from 20 to 60 per cent.

The blood of lymphatic leukemia is characterized by the high percentage of lymphocytes amounting to from 60 to 90 per cent. Large and small lymphocytes are both present but the large ones predominate in the acute cases and the small ones in the chronic cases. The white count varies from 30,000 to 500,000 per c.m.m. and a more or less severe grade of anemia is present.

#### BLOOD CHANGES IN SURGICAL CONDITIONS.

Pus anywhere in the body will give rise to leucocytosis unless it is thickly encapsulated, or the infection is one of extraordinary severity. The so-called pus from a cold or tuberculous abscess is only debris and does not give rise to a leucocytosis. The thick fluid in cases of pyosalpinx is generally sterile, so in the majority of cases there is no leucocytosis.

Acute appendicitis generally gives a leucocytosis of 10,000 to 15,000, but not invariably; while in perforative appendicitis and general peritonitis a leucocytosis is usually present early, but falls as the patient's condition becomes more severe and his resistance lessens. The leucocyte increase is of the polynuclear variety.

Time will not permit the consideration of the blood changes in general diseases, but the rule of leucocytosis in acute infective processes is to be borne in mind; while a falling off of the number of leucocytes and absence of leucocytosis is to

be considered of bad prognostic outlook in the acute infections.

In conclusion let me say that I have tried to outline the simpler routine examinations of the blood and to bring to the front those special blood pictures that will aid in making a diagnosis. Not every case requires a blood examination, and far too few cases have it. Except in two or three isolated instances the blood examination alone is not sufficient for a diagnosis; but it is a valuable asset in many cases and absolutely essential in those of an obscure nature.

Blood examinations, like other laboratory procedures can never take the place of thorough, conscientious clinical study, but must be taken as a part of it.

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#### VALEDICTORY ADDRESS OF THE RETIRING PRESIDENT OF THE COUNTY OF ROCKLAND MEDICAL SOCIETY.\*

By M. J. SANFORD, M.D.,  
SUFFERN, N. Y.

THERE is a certain kind of information—statistical and otherwise—that the members of this Society have a right to know. This matter is not covered by the reports of the other officers and committees and is perhaps best given by the president.

The Society now has thirty-four members representing eleven different colleges and six different states. Eleven of the thirty-four are Columbia men. Eight represent New York University and Bellevue. The other colleges represented are University of Pennsylvania, Long Island, Cornell, Baltimore, Hahnemann, Yale, Buffalo, University of Vermont and Wooster, Ohio. Twenty-five only graduated from colleges in New York State.

Sixteen members received their degree more than twenty years ago; eight, more than thirty, and two, more than forty years ago. These two are Dr. S. S. Bogert, 1865, and Dr. N. B. Van Houten, 1867, both Columbia men.

This meeting ends the fourth year since the union of the Association and the old Society. In these four years fourteen regular meetings have been held in six different places—two in Nyack, one in Haverstraw, one in Nanuet, three in Piermont, three in Suffern, and this is the fourth in New City.

During 1906 and 1907 but three meetings were held each year. No regular date has since passed without a meeting.

In 1907, nineteen members attended at least one meeting. In 1908, twenty-two; and in 1909, twenty-six at the first three meetings—all but eight of the total membership.

In 1906, the average attendance at each of the

\* Read before the Medical Society of the County of Rockland, at New City, December 1, 1909.

three meetings was eleven. In 1907, eight and one-third. In 1908, at each of the four meetings, fourteen and three-fourths; in 1909, fifteen and three-fourths.

Twelve physicians have joined the Society during these four years. Among the registered physicians of the county are said to be some desirable men who are not members of this Society. The State Society is constantly urging the counties to look up such men and get them in line. The by-laws provide for keeping a list of these, and Dr. Dingman has promised to have this work completed before January 1, 1910. This is being done in the hope that the Society can thus further strengthen itself.

The subjects of the scientific programs of the past four years have been varied and practical. The papers have compared favorably with papers read anywhere, and several of them have been printed in the STATE JOURNAL.

The business undertakings thus far have been numerous and have absorbed more time than they merited. The results have been remarkable and weird. In spite of the Society's efforts toward reform, no \$25 autopsy has yet been made; insurance examinations are made at the cut prices; counter prescribing and "Rexall" flourish and insult; milk yielding 2 per cent. cream and 3 per cent. fecal matter is still sold, and an unlicensed practitioner recently signed a death certificate and fled.

But harmony—the most imperative demand of the Society—has prevailed and characterized the meetings of the past four years. The factional strife, so feared before the amalgamation, did not occur. Officers, meeting places and programs have been chosen without friction.

Personal feelings and prejudices do, nevertheless, creep in at times and interfere. Some counties do certain kinds of good work that is impossible in this county because of this interference. But, on the whole, the working condition of the Society is all that could be expected of a four-year-old.

The Society has perhaps accomplished more, socially, than in other lines. Valuable acquaintances have been formed. In an organization of physicians, the social question is a vital one. It would be difficult to exaggerate its importance. The practice of medicine tends to alienate physicians. Occasional meetings for adjusting misunderstandings, for smoking peace pipes and for swapping jokes, are indispensable. Without social harmony almost any effort would be wet-blanketed. Perfect social organization is the best prophylaxis against discord.

And again, there is a social hunger peculiar to doctors that can be satisfied only by doctor's society. No other society affords him that peculiar liberty he craves. A bunch of his own profession furnishes him a safety valve for a lot of his best stories and illustrations that are not appreciated by the laity. Their wit and

humor have no substitutes. The meetings of this Society are more and more meeting these requirements.

A meeting with no so-called "business" but with plenty of mirth and a few luxuries is a success and answers a demand.

Practical papers by recognized authorities have been telling cards in the past four years; but nothing attracts as a good time with plenty of creature comforts. Piermont and New City usually give the best attendance. There's a reason.

The two old organizations are now working harmoniously for the same end. Attendance and membership are improving and factional strife does not hinder. The Society to-day can furnish more than the Directory, JOURNAL and defense in malpractice accusations. If some profit by membership and others do not, something needs righting. The Society to-day is stronger than ever before and membership and attendance more desirable.

Before closing this paper mention should be made of the Society's losses during the four years. Against a gain of twelve members is a loss of four. One moved out of the state. One was transferred to another county. One neglected to pay his dues and requested his name dropped. The fourth died.

In the death of Dr. Samuel S. Carter, of Haverstraw, the new Society to-day mourns its first bereavement. Dr. Carter was not widely known. He did not court notoriety. He received his degree from Long Island in 1895 and practiced in his contented, unassuming way until his death from diphtheria, October 27th last. He was blessed, we are told, with friends enough to guarantee his good fellowship and with enemies enough to vouch for stability of character. Back of anything Dr. Carter's enemies may say, is the fact that he belonged to a profession whose objects are almost purely public good and whose qualifications are chiefly self-sacrifice. No one, wholly bad, ever practiced medicine successfully fourteen years. Several members did not know Dr. Carter. They did not need to. To an organization like this, the bereavement of death always brings a sense of sacred calm—a sort of solemn peace connected with the thought of a lost physician.

## HUMANE CONTROL FOR ALCOHOLICS.\*

By GEORGE H. McMICHAEL, M.D.,  
BUFFALO, N. Y.

**I**N the belief that most of you hear all that you desire of technical medicine during the daytime, I intend to say as little as possible about the use of drugs in the treatment of alcoholism. Further, in these days when the

\* Read before the Medical Union of Buffalo, N. Y., April 27, 1910.

popularity of medicines is on the wane among both physicians and patients, it is unnecessary for me to emphasize the obvious truth that drugs unaccompanied by hygienic and mental treatment do not cure alcoholism, or any other nervous disease.

Notwithstanding abundant evidence of the ravages of alcohol, there is much popular ignorance on the subject, but there are now signs of a partial appreciation of the undeniable fact that inebriety is a curable disease—not a crime—and that if we are to increase or even to maintain our national health, we must bring renewed vigor to the task of overcoming the serious disorder known as alcoholism.

To some persons the most minute quantity of alcohol is an excess, because they were born with a somewhat unstable nervous system, and any amount whatever, even a thimbleful, may awaken an irresistible desire for alcoholic indulgence. In my opinion, however, the specific craving for alcohol, as well as for morphine and cocaine, is seldom instinctive, but is usually acquired, and therefore very few men crave any of these intoxicants or drugs until they have indulged in them. My experience extending over eighteen years leads me to the conclusion that for one man who is born with the alcoholic susceptibility in the form of a neurotic constitution, there are at least three who have been educated to excessive drinking by their environment. As a disease, alcoholism is contagious in the sense that its origin may generally be found in the sufferer's surroundings, and for that reason there is no excuse for telling an alcoholic, that, having inherited his condition from his parents, his disorder resembles what orthodox theologians call "original sin." Apart from the untruth of this hypothesis, it is objectionable because it enables the patient to blame his ancestors for his disease instead of exerting his will-power to aid in his cure.

As the alcohol problem is, in reality, only a part of a much larger problem touching all human interests, it is obvious that the difficulties connected with it are as much social as medical. To treat an epileptic as a criminal and send him to prison would be denounced as an outrage, yet the alcoholic, who can no more resist drinking when intoxicants are obtainable than the epileptic can help having a fit, is sent to prison every day. When alcohol is unobtainable, the inebriate is almost certain to resort to other drugs, and when these cannot be secured, his nervous collapse is evidenced by what may be termed "explosions," that is violent attacks of anger upon little provocation, or none at all.

As alcoholism is a disease, neither prisons nor policemen can aid in its treatment. We physicians alone can accomplish anything worthy of the name of cure.

No alcoholic can be permanently benefited unless he realizes that the cure of his disease

consists of the process of strengthening his nervous system in such a manner that he will have the ordinary self-control possessed by every normal man. He must be made to understand that for him total abstinence is imperative, and that a single alcoholic drink is very likely to be the starting-point in a second attack of his disorder.

In an alcoholic who has been scientifically treated for his disorder by having his nervous system restored to a normal state refrains from exercising his will-power, he will, of course, have a second attack of the nervous disease of which alcoholism is the outward manifestation. So far as my knowledge goes, no neurologist ever guarantees that he has cured his patients of any complaint for the rest of their lives.

Alcoholism can usually be cured, not by specifics, so-called, but by rational treatment in a sanatorium where only this class of patients is received. It cannot successfully be treated in our general hospitals or lunatic asylums on account of its character as a nervous disease.

The law of the State of New York in regard to inebriety is most unsatisfactory. A statute is urgently needed which would enable any large city to establish and maintain a hospital or sanatorium for the exclusive treatment of alcoholics—an institution in which the friends of inebriates could obtain medical attention for them, if they were unwilling to submit to it voluntarily. The county judge, or any supreme court judge ought to have power to make an order upon the certificate of any licensed physician requiring the patient to remain, one, two or even three months in a special hospital for alcoholics, during which time he could be regarded as a sick man and treated as such.

This method would stop the excessive drinking of a certain number of persons who cannot at present be restricted by law, and who persistently refuse medical aid in any form. They are unable to cease drinking of their own free will, yet they cannot believe that they are suffering from a serious disease.

It is to the credit of alcoholic patients that after the first week's treatment they almost invariably pay every attention to necessary details, and show their anxiety to recover their health.

I am convinced that a court order to compel an excessive drinker to take treatment would not be necessary in the majority of cases, for I am confident that when the State recognizes alcoholism as a disease, and provides suitable surroundings for those who suffer from it, inebriates as a class will understand the position in which they are placed, and will accept the advice of their friends to obtain medical aid, which is the only assistance that can be given to them.

Without some legislation, however, you and I can do comparatively little, because no power

exists to place any alcoholic in a sanatorium against his will.

Alcoholism is a disease which kills its victims surely, but quite slowly, and during its course it brings much misery not only to the sufferer, but to his family, and often to the community in which he lives. These conditions are known to all thinking men, many of whom, however, have given little attention to the means by which they can be alleviated. If sincere efforts were made to enforce such a law as I have suggested, time might demonstrate the necessity of extending the period of detention beyond three months in extreme cases. I venture to say that such cases would not be numerous.

Compulsory abstinence alone, enforced in our prisons and lunatic asylums, called "State Hospitals," has never cured alcoholism—and never will. The discharged prisoners, or patients usually resume their alcoholic habits within twenty-four hours of securing their freedom. The failure of regarding alcoholism as a crime and punishing it as such cannot be denied, for it has been tried for a generation without anything approaching satisfactory results.

I think it desirable to read to you a short extract from the report of a commission appointed by the Governor of New Jersey to make inquiries as to the causes of dependency and crime:

"We desire to call attention to the importance of the establishment of a hospital for persons who are afflicted with a habitual addiction to alcohol and other narcotic drugs, so that they may be scientifically treated and restored to usefulness. It is the consensus of opinion that our present method of dealing with the inebriate who falls into the hands of the law, as he is very apt to do, is barbarous and inhuman, and is a relic of the Dark Ages. Punishment for drunkenness has been meted out for centuries, and has been proven to be an absolute failure. Why should this method be allowed to continue when there is a more rational method of dealing with these unfortunates, many of whom, through heredity and environment, are more sinned against than sinning—a method which in the light of modern progress is as bright and full of hope as the present method is full of darkness and despair. The State needs most urgently a hospital for inebriates. Aside from its incalculable value as a saver of men and women, it would be a great financial gain in the end."

The great State of New York ought not to lag behind in any matter which is of vital importance to all its inhabitants. It is not an exaggeration to say that we have no problem which equals the alcohol question in its far-reaching consequences. The legislation would act wisely if it at once appointed a commission to consider the whole subject, for the evil is by

no means decreasing, and will probably increase until some measure along the lines named in this paper becomes law.

The moral influence of the maintenance of a municipal hospital or sanatorium for inebriates can hardly be over-estimated.

Doctors, you are the guardians of the health of our people. You have been the pioneers in all health reforms that have ever been adopted. I appeal to you to exert all the power you possess to pave the way toward municipal hospitals for the special treatment of alcoholism in this and other cities.

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### GOITRE AND THYROIDISM.\*

By G. W. COTTIS, M.D.,

BATAVIA, N. Y.

SO much has been written on this subject during the past few years that it may seem futile to devote any time to a discussion of goitre. My reasons for presenting this paper are, first, we are located in a goitrous region; second, modern research has greatly modified our ideas of certain phases of the disease, and third, the most important type of goitre is more often allowed to pass unrecognized by physicians than is almost any other serious disease except, perhaps, incipient tuberculosis and gallstones.

Any attempt to cover all aspects of so large a subject in a single paper would be both wearisome and unnecessary. I shall therefore confine myself to a few important points concerning simple goitre, and especially to the diagnosis and treatment of exophthalmic goitre.

*Simple Goitre.*—Under this heading we may group all those chronic enlargements, not due to known infections or to the various tumors, and which are unaccompanied by symptoms due to over activity of the gland.

Omitting the interesting questions of etiology and pathology, and coming at once to symptomatology, we find two classes of symptoms, mechanical and functional. Of these the former are the more important, for functional symptoms in simple goitre are relatively infrequent. When they do occur they are produced by atrophy or degeneration of the secreting epithelium, with consequent thyroid deficiency, and are simply more or less severe grades of myxedema. In practice, the majority of cases are not severe enough to attract much attention, the usual symptoms being dryness of the skin and hair, with a characteristic facial expression of almost bovine placidity and more or less slowness of thought and speech.

The mechanical symptoms are those which first attract attention. Deformity due to enlargement of the gland is usually, but not always, present.

\* Read at the annual meeting of the Eighth District Branch, at Buffalo, September 27, 1910.

Pressure on the trachea often produces a stubborn irritative cough whose real nature is too frequently unrecognized. Difficulty in swallowing or even severe choking attacks may be produced by pressure on the esophagus. A rather common symptom is a change in voice, probably resulting from irritation of the recurrent laryngeal nerve. It may be so slight as to be noticed only as a sense of fatigue after public speaking or singing, or it may be pronounced hoarseness or even aphonia. Another very characteristic symptom is dyspnea, occurring either on exertion or on lying down at night.

It is important to remember that all of these pressure symptoms are especially likely to result from goitres which frequently escape the attention of both patient and physician. In these cases the growth, instead of spreading the cervical muscles and appearing as a lump in the neck, extends downward behind the sternum, where it can neither be seen nor palpated. A goitre in this situation, being surrounded by the unyielding bony ring of the thoracic inlet, is almost certain to cause some pressure symptoms, and any sudden increase in size may result in distressing or even fatal interference with respiration. These intra-thoracic goitres are of frequent occurrence, and should always be sought as a possible cause of the symptoms just described. Fortunately, they are usually associated with cervical goitres which are easily detected.

Exophthalmic goitre is known by a variety of names, most of which are unsatisfactory. "Graves' disease," "Parry's disease" and "Basedow's disease" should all be discarded. Such names tell nothing of the nature of the disease and our present conception of it is very different from that of Graves, Basedow or Parry. Exophthalmic goitre is misleading because neither exophthalmos nor goitre are essential symptoms of the disease. The most satisfactory term, because it indicates the true nature of the malady, is thyroidism, and this name is rapidly coming into general use. Whereas the term "exophthalmic goitre" is based upon two symptoms of a complex disease, thyroidism expresses the pathology underlying all symptoms, namely, an intoxication due to an overproduction of thyroid secretion. It is probably true that other ductless glands, particularly the glands of Langerhans, adrenals and pituitary body are secondarily involved, but their exact relationship has yet to be established.

For a rational conception of the symptoms it is necessary to remember that the thyroid nucleoprotein has a powerfully stimulating effect on the sympathetic nervous system, and especially on the sympathetic or accelerator nerve of the heart. Hence in thyroid intoxication we have excessive irritability of the nervous system, tremors, tachycardia, flushing of the skin, sweating, increased metabolism with its consequent loss of weight, insomnia and exophthalmos. The latter symp-

tom appears to be a result, in part at least, of the recently discovered unstriped muscle of Landstrom, which is supplied by the sympathetic. The theory elaborated by Rogers is both ingenious and helpful as a comprehensive explanation of the disease and its relation to the chromaffin system. I regret that time forbids my offering you even a summary of it here.

In the incipient stage we have usually a history of mental or physical strain, as when a mother takes care of a child through a long illness, or a young girl is compelled during her period of greatest development to go to work in an unfavorable environment, or applies herself too closely to her studies. The patient has a chronic tired feeling, some insomnia, irritability or mental depression, perhaps some digestive disturbance, and a thumping of the heart when in bed. There may be a uniform soft enlargement of the thyroid—perhaps not enough to attract her attention. Under proper hygienic treatment at this stage, recovery is the rule, even if the real condition is not recognized, or the patient may progress into true thyroidism.

The diagnosis of thyroidism is not difficult if we are on the lookout for it. Somebody has said that a man sees what he knows. In our mental picture of this condition we are prone to emphasize the spectacular features—which are not usually the most important. The common name of the disease leads us to think first of protruding eyes and a swollen neck, instead of "nervousness" and a rapid heart action. Many cases of so-called heart disease, and especially myocarditis and fatty heart are really cases of thyroidism and as such can be cured if recognized before permanent damage is done to the heart and kidneys. We too often accept our patient's diagnosis.

Probably the most important symptom, from the diagnostic standpoint, is nervous irritability. All the other symptoms are induced or increased in severity by emotional causes. The patient may weep on the least provocation and states that "everything makes her nervous." This feature is so pronounced that long after Graves and Basedow described the disease, many of the best observers insisted that it was a pure neurosis. Martin B. Tinker has called attention to the fact that these patients may describe a sensation of having a lump in the throat, strongly suggesting the classical globus hystericus, and without a careful examination to reveal the presence of a real lump—the enlarged thyroid—we may easily be misled into diagnosing hysteria.

Associated with this symptom is a peculiar muscular weakness, which has been well named "fatigueability." Even moderate muscular effort causes in a short time a tired feeling, which is sometimes so severe as to be described by the patient as a pain or an ache.

It is evident that the combination of nervousness and fatigueability may closely simulate

true neurasthenia and the similarity is increased by the fact that both diseases are likely to result from prolonged mental strain. Such a mistake in diagnosis, especially if outdoor exercise be prescribed, will probably be disastrous. Fortunately, in thyroidism these two symptoms are almost always associated with others which allow a positive diagnosis if the patient be properly examined. In order of frequency, we find:

1. *Tachycardia*.—This is rarely absent, and may be continuous or intermittent. If intermittent, the acceleration of pulse is produced by relatively slight excitement or physical exertion. As a rule the pulse rate will be above 90, and in severe cases it may remain about 200 for many hours at a time.

2. *Goitre*.—While some enlargement of the thyroid is present in nearly all cases, this enlargement is by no means always apparent. At operation one is often surprised to find the gland enlarged to a degree quite unsuspected from inspection or palpation. This is especially true in the case of intra-thoracic goitres, while, therefore, the presence of goitre is strongly corroborative evidence of thyroidism, its apparent absence should not be allowed to negative the diagnosis.

3. *Tremor*.—This symptom can usually be elicited by having the patient extend the arm and spread the fingers. While frequently confined to the fingers, it may affect the whole arm or the head, and according to Ochsner it may affect the entire body.

4. The eye symptoms so fully described in the text-books are valuable when present, but their absence should have little weight in diagnosis.

Exophthalmos is rarely an early sign and is present only in 66 per cent. to 75 per cent. of all cases. Even when present it is often so slight as to escape the attention of any but a trained observer.

*Gräfe's Sign*.—The lagging behind of the upper lid when the eyeball is turned downward, is valuable, but occurs in only about half the cases and may occur in other conditions. The same is true of Mœbius's sign—the unequal convergence of the eyes when the patient tries to look at an object held near them. These symptoms may precede the appearance of goitre, although usually some enlargement of the gland is present.

Finally, I wish to emphasize a symptom described by Kocher, which deserves wider recognition than it now has. A blood smear will show very often a relative decrease in the polynuclear white cells with a corresponding increase in the lymphocytes. As a rule, the increase in lymphocytes varies directly with the gravity of the symptoms. In desperate cases, however, where the system is overwhelmingly intoxicated, no decrease is found, and this indicates a grave prognosis. The correspondence between the amount of relative

lymphocytosis and the gravity of the intoxication, makes this symptom valuable in prognosis, but in diagnosis it is chiefly corroborative. In the very early cases, where the diagnosis is sometimes difficult, the lymphocytes are increased but little or not at all, and in cases sufficiently advanced to show a marked increase, the other symptoms are so pronounced as to render the diagnosis easy.

I purposely omit a large number of minor symptoms, for the reason that every case presents at least two or three of those already referred to, and these are sufficient for positive diagnosis.

Any patient, and especially a woman, who presents a rapid heart action and neurasthenic symptoms should be examined carefully for other symptoms of thyroidism. The best authorities agree to-day that in the absence of other causes, such as alcoholism, nicotine poisoning, drug addictions, anemia, etc., the presence of tachycardia and nervous irritability, especially if associated with any visible or palpable enlargement of the thyroid should be diagnosed as thyroidism. If looked for, corroborative symptoms—tremor, lymphocytosis or ocular symptoms—will be found in practically all cases. In doubtful cases, the diagnosis may be established by the administration of thyroid extract or iodine, either of which will usually cause a prompt exacerbation of symptoms in true thyroidism.

To illustrate the terminal stage of an untreated case: Mrs. H., married, age 52, came to my office March 21, 1910, complaining of nausea, sour stomach, weakness, dyspnea, palpitation and insomnia. She was excessively nervous and had been treated for three years for "nervous heart" and "nervous dyspepsia."

Examination showed: Pulse 170, intermittent and weak; marked tremor of hands; occasional tremor of head. Heart dilated. Abdomen negative. There was a double goitre—one tumor, cystic, of twenty years' duration; the other, smaller and solid, had appeared five years ago, at about the time she first noticed the palpitation and nervousness. The urine was loaded with albumen and contained many hyaline and granular casts. There was no exophthalmos or other ocular symptoms except unequal convergence. Differential blood count,

Polynuclears .....	53%
Small lymphocytes .....	26%
Large lymphocytes .....	20%
Transitionals .....	1%
Eosinophiles .....	0%

She was sent home and ordered complete rest treatment. After two weeks in bed she improved considerably and insisted on returning to household duties. A few weeks later she returned to my office with a pulse which could not be counted at the wrist. She was taken to the hospital, where the stethoscope revealed a heart rate of

200 with marked dilatation and a loud double mitral murmur. She was so restless that in a few days she wore her elbows and knees raw and it was necessary to bandage them. Insomnia was almost uncontrollable. Differential count, April 10th:

Polynuclear .....	33.8
Small lymphocytes .....	36.0
Large lymphocytes .....	25.5
Eosinophiles .....	4.7

As a forlorn hope, I ligated both superior thyroid arteries, without any noticeable result, other than some improvement which might have been expected from the rest in bed. She returned to her home and died May 28th from cardiac failure.

This case represents a large class of patients whose death is reported as due to cardiac disease. They are a reproach to the medical profession, for the cardiac and renal degenerations are due to a toxemia which is either preventable or curable in a vast majority of cases. The time has come for us to recognize the inaugural symptoms of thyroidism. In order to do so, however, we must think less of the classical descriptions of the disease and bear in mind its protean nature.

To illustrate again:

Miss H., age 22. Daughter of the patient just described. Before her mother's death had a soft symmetrical goitre, producing no symptoms. About five weeks after her mother died she consulted me, complaining of feeling tired all the time. Her arms and legs ached after the slightest exertion. She had lost five pounds in one week. Examination of heart, lungs and abdomen was negative. Temperature 99.2, pulse 106. Thyroid slightly enlarged. Fine tremor of fingers. No exophthalmos, but eyes showed the peculiar staring described by Stellwag. Differential blood count:

Polynuclears .....	62.33%
Mononuclears .....	35.00%
Eosinophiles .....	1.33%
Transitionals .....	1.33%

After a week of complete rest, followed by a two weeks' vacation, with entire freedom from excitement and exertion, she returned practically well, having gained six and a half pounds.

Here the prominent symptoms was the peculiar muscular weakness which should always suggest thyroidism. This case presented three other characteristic features: The mononuclear leucocytes were increased but slightly, corresponding to the mildness of the symptoms and to the favorable prognosis; simple goitre predisposed to thyroidism, and the change from the simple to the thyroid type was induced by profound grief and worry.

If we are to avoid overlooking these cases, we must bear in mind the fact that the so-called minor symptoms are often the first ones to at-

tract the patient's attention. They are not associated in her mind with her goitre, or she may not know that she has one. Consequently her description of her symptoms very frequently does not suggest the real source of the trouble. In my notes on twenty cases of thyroidism and of goitre with more or less thyroid intoxication I find the following groups of symptoms, representing the patient's complaints at the time of the first visit:

1. Aching of the muscles, lasting for several hours after even slight exertion. Had been called muscular rheumatism.

2. Pains in left side of chest, shifting from precordium to axilla and shoulder. This was probably a pure viscerosensory reflex from the over acting heart, and it disappeared with the reduction in the heart weight. In my experience this has been a relatively frequent symptom.

3. Weakness, loss of weight, sweats, and insomnia, associated with persistent cough. This syndrome closely simulated pulmonary tuberculosis, and yet all the symptoms resulted from a deeply situated goitre.

*Treatment.*—The medical treatment of simple goitre may be summed up in a few words, rest, plenty of sleep, freedom from strain and worry, attention to the general health and, as specific medication iodine internally and externally and sometimes thyroid extract. The majority of cases occurring in young women as soft vascular goitres will clear up under this treatment. The vast majority of old cystic goitres will not, although even these may show some improvement. Both iodine and thyroid extract should be used cautiously until we are sure that there is no tendency to thyroidism, in which case, we would simply be adding fuel to the flames. Cases amenable to iodine will also improve under the X-Ray, but this seems to have no special advantages over the less troublesome drug treatment. If after a fair trial little or no improvement is produced, and especially if there are distressing pressure symptoms or much disfigurement, surgical treatment should be advised.

The medical treatment of thyroidism consists in absolute rest, mental and physical, fresh air, sometimes belladonna, quinine or strophanthus, and some form of organo-therapy. Iodine and thyroid extracts are usually absolutely contradicted. Good results have been reported from thyreodectin, although I personally have usually failed to observe any. The thyroid serum of Rogers and Beebe has produced some brilliant results, although it is not free from danger. Rogers in a series of 480 cases reports 15 per cent. complete cures and 10 per cent. cured of subjective symptoms, but retaining signs of goitre, 50 per cent. somewhat improved but not followed up, 17 per cent. no improvement and 8 per cent. died



of the disease, one of these deaths being apparently due to the serum.

While in the early stages complete rest and tonic treatment will effect a cure in the majority of cases, complete recovery is the exception in those cases which first come under treatment in the late or even moderately advanced stages. Contrary to the popular belief, the ultimate mortality in this disease when it has progressed beyond the initial state is high. It is also largely preventable. Death usually results from exhaustion and from the degenerations in the heart, kidneys and liver, due to the long continued toxemia. Consequently, in all cases which do not respond to thorough medical treatment within a few months and in all cases where such treatment cannot be carried out, the surgeon should be called in. If he finds the condition so advanced as to preclude a fair prognosis, he will know, if it is not an acute case, that someone has blundered.

There are very few surgical procedures which demand more precise anatomical knowledge, surgical skill and good judgment than does the operative treatment of goitre. Nevertheless, in the hands of a competent surgeon, no other procedure yields more brilliant results. Kocher, in his very large series of cases, did not fail in a single instance to afford the patient much benefit. In 73 per cent. of primary thyroidism a cure was effected, and 92 per cent. of the cases of thyroidism combined with ordinary goitre were cured. Of vascular goitres 100 per cent. were cured. His mortality for all cases was 3.5 per cent., but the mortality during recent years has been much less. C. H. Mayo's statistics are very similar to those of Kocher.

Without detailing the operative procedures, I would like to emphasize three essentials:

*First.*—Proper preparation of patient and choice of time for operation. A patient during an exacerbation of thyroidism may succumb to an operation which she could undergo with safety after a few weeks of preliminary rest and treatment.

*Second.*—In severely toxic cases, the operation should be done in two, three or more stages. For example, a patient whom I saw with Dr. H. L. Prince was extremely emaciated and so weak as to require assistance in walking across the room. Any radical operation was utterly out of the question. After ligation of her superior thyroid arteries under cocaine she gained a pound a week and so improved in strength and heart action that some six months later she successfully withstood a difficult radical extirpation.

*Third.*—Local anesthesia. This is the method of choice in cases both of simple goitre and of thyroidism. These cases are not likely to be good subjects for general anesthesia. By using cocaine solution in a strength of 1:1000 we eliminate all danger from the anesthetic, avoid the

post-anesthetic nausea, with the increased danger of secondary hemorrhage, and have ample warning if the recurrent laryngeal nerve is endangered in our manipulations. Furthermore, statistics show a lower mortality under local than under general anesthesia. Kocher, I believe, absolutely refuses to operate on patients who demand a general anesthetic.

Two cases recently under my care will serve to illustrate some of the relative advantages of local anesthesia. Mr. D., aged 67, had a large cystic goitre for forty years. He recently suffered several attacks of alarming syncope, dropping suddenly to the ground and losing consciousness for a few seconds or a minute. This symptom led him to consent to an operation. Under cocaine I removed a cystic tumor which weighed three pounds after about a third of its contents had been evacuated. This patient suffered no pain during the operation. One hour after leaving the table he ate his dinner and three hours later left his bed during his nurse's absence and walked to the bathroom. He left the hospital in one week perfectly well, and had no more attacks of syncope.

The other patient, Mrs. W., aged 50, had an adenomatous goitre of moderate size. At the last moment she insisted on a general anesthetic. After the operation she had a great deal of nausea and vomiting, aggravated by a profuse flow of mucus from the trachea. On the second day she developed a temperature of 103 deg., with respirations of 34. Examination showed a beginning consolidation of the lower lobe of the right lung. She recovered, but for several days her condition caused me much apprehension. The wound healed by first intention and she was relieved of her chronic cough and dyspnea, but at much greater risk and discomfort than if she had consented to local anesthesia.

#### CONCLUSION.

1. Thyroidism is a common disease. It is often wrongly diagnosed as neurasthenia, hysteria, heart disease, and pulmonary tuberculosis.

2. Early diagnosis is imperative to prevent serious damage to the heart, kidneys and neuromuscular system.

3. Every case of tachycardia or nervousness should be examined for other symptoms of thyroidism.

4. Tachycardia, nervous irritability and fatigueability in the absence of other sufficient cause, justifies a tentative diagnosis of thyroidism.

5. Medical treatment should be instituted and rigorously enforced until its efficiency or inefficiency is demonstrated. If the disease is not checked, surgical treatment is demanded.

6. Careful preparation of patient, operation in two or more stages in severe cases, and local anesthesia, are essential to the best result.

## SUPRAORBITAL NEURALGIA.\*

By R. P. HIGGINS, M.D.,

CORTLAND, N. Y.

PAIN above the eye is a common symptom presented to the general practitioner for relief. As a rule when this symptom is unassociated with other obvious clinical manifestations the doctor passes off the diagnosis as a neuralgia, particularly when it occurs in a patient supposed to be of the neuralgic type and the pain has been of a severe paroxysmal character. It is the purpose of this paper to call attention to certain affections of this region giving rise to this same symptom and to demonstrate that more of these so-called supraorbital neuralgias have an organic basis and are not at all idiopathic or functional in their origin.

This distinction is not an academic one, for it bears a close relationship to the treatment, and many cases which have gone along with this slipshod diagnosis have come to grief before the real trouble has been ascertained and suitable measures taken for relief. For example: Miss C., an elderly maiden lady of about 55 years of age, came to me last May, complaining of severe paroxysmal pain above the eyebrows. She had been treating with her family physician, who had termed the trouble a neuralgia and had partly been able to relieve the excruciating pain by treating her symptomatically, but the trouble had recurred from time to time and now there was nearly all the time a constant dull pain over both eyebrows. For the past few weeks she had noticed a gradual dimness of vision developing in both eyes, more marked in the right eye, and for the past week she had been unable to see at all with the right eye. Upon examination it was found that Miss C. was suffering from glaucoma in both eyes and this had been the cause of her brow aches. The disease had progressed so far that all sight was lost in the right eye, even to light perception, and the acuity of vision in the left eye was reduced to less than one-half normal vision. Prompt therapeutic measures were able to stop the onward progress of the disease in the left eye and bring back the vision a little more nearly to normal, but nothing could be done for the right eye and it remains now as then totally blind. At the rate the disease was progressing had only the antineuralgic treatment been kept up the woman would now be hopelessly blind.

Mrs. D., a married woman of about 45, came complaining of a most intense pain over the left eye. About two weeks previously she had suffered from a severe attack of grippe, and following this attack there had been a profuse yellowish-green mucopurulent discharge from the nose. For the last twenty-four hours she had noticed that the discharge had lessened and with the cessation of the discharge the pain in the

eyebrow had begun. She described the pain as a sense of pressure and very acute. It was worse when bending the head forward. Pressure with the thumb under the eyebrows in an upward direction caused intense pain. Her temperature was 99. Other symptoms were normal except a slight acceleration of the pulse. Anterior rhinoscopic examination showed a thick, turgid, bulging anterior end of the middle turbinate body which touched the septum and occluded that part of the intranasal space. The application of cocaine to shrink the tissues was followed by a profuse flow of yellowish purulent matter from the region of the frontonasal duct and a temporary relief of the symptoms. Evidently this patient was suffering from an inflammation of the frontal sinus, and measures alone of treatment for this trouble would be of help in her case.

Still a third illustrative case: Mr. P., a single man of 40 years of age, sent for me one night complaining of a most intense pain over the left eye which had developed during the last ten hours. The pain was very severe and was described as a hot iron boring into the eyebrow. There were no febrile symptoms, no nasal discharge, and examination of the eyes was negative. I was nonplussed to make a diagnosis and treated the disorder symptomatically, when thirty-six hours later a group of raised reddish spots appeared surmounted by groups of small vesicles, sharply limited to the left side of the forehead and the left upper lid. A few vesicles even appeared upon the conjunctiva and one on the cornea. The diagnosis of course then was plain and we had to do with a herpes zoster of the superior branch of the trigeminal nerve, also called from its location herpes ophthalmicus.

The word neuralgia simply means nerve pain and as commonly used it signifies any pain which appears to shoot along the course of a nerve. Strictly, however, the term has been used to designate those painful affections which are *not* accompanied by a gross organic lesion of some part of the nervous system or adjoining structures, while pains caused by well-defined organic lesions, such as the lightning pains in tabes and the neuralgia following herpes ophthalmicus, are referred to their true source. As we learn more about the pathology of the nervous system we find that constantly more and more of these cases thought to be purely functional and symptomatic are due to some underlying organic cause, and we may be justified in believing that ultimately practically all neuralgias will be classified as symptoms of disease in some part of the nervous system or as an expression of irritation of the nervous system from visceral irritation or from some general diseased bodily condition. With this conception, neuralgia becomes not a disease but a symptom. At the risk of adding to the number of definitions, I should like to present this definition of a neuralgia, as a painful affec-

\* Read at the annual meeting of the Sixth District Branch, at Cortland, September 27, 1910.

tion caused by a general or peripheral irritation along the course or region of a nerve, or due to some lesion in its course.

Patients differ greatly in their reaction to pain. Any condition which would tend to lower the general bodily resistance would serve to increase the reaction to painful stimuli. It is a constant wonder to see with what equanimity certain persons bear affections that in a susceptible person would almost certainly be accompanied by severe and tormenting pain. But let these same individuals get reduced from overwork, worry, exposure, anæmia, or some general toxæmia or infection such as malaria, lead, or alcoholic poisoning, or even autointoxication, and then our patient begins to complain from pain. Many times too in our neurasthenic and hysterical patients who are clamorous in their complaints of pain there is really some little unsuspected irritable lesion the starting point of the trouble, which is soon lost sight of and overshadowed by the multiplying symptoms in a hypersensitive and susceptible nervous system. So in treating these patients, in looking for a local causal factor we must not lose sight of the general constitutional condition to remedy any defects there or the removal of the local trouble may be fruitless in affording relief; likewise too we must be careful in searching out any local irritation or our general and symptomatic treatment will be without avail. For instance, the removal of a carious tooth in a debilitated patient may be ineffectual to relieve his trigeminal neuralgia until the cause of his debility is removed, likewise on the contrary in this same patient our tonics and building up measures will be ineffectual until he seeks the services of a dentist.

The causes of a neuralgia are either general or local. The general causes render the nerves in a susceptible condition and capable of irritation and the local causes furnish the exciting agents. All writers consider *anæmia* as a potent factor in the causation of neuralgia. It cannot be a constant factor for we know the majority of cases of anæmia are unaccompanied by pain. Chlorosis, however, is frequently associated with widespread neuralgias, often associated with signs of an accompanying local disorder. *Malaria and influenza* are often accompanied by a most severe "brow ache" coming on with paroxysms at the height of the disease or even following it after some time. One of the initial symptoms of *typhoid* fever may be a similar trouble. As will be mentioned later, much of this neuralgic pain above the eyes in infectious disorders is due to an associated sinusitis, and it may be that all of the neuralgias of this class can be traced to a like source. Neuralgia is common in *diabetes*, especially about the jaws and face, but this may be due to an associated decay of

the teeth, which occurs frequently in severe cases of this disease. Syphilis may be associated with a most severe type of neuralgia and in all probability this is caused by some specific lesion along the path of the affected nerve. *Autointoxication* may give rise to a neuralgia which may be caused by toxic products circulating in the blood, affecting either the terminal filaments of the nerves, or causing some change in the nerve substance rendering it more susceptible to irritation. That autointoxication may cause the development of organic disturbances has been incontestably proven by recent investigators who have demonstrated it as the causal agent in the production of certain eye diseases. Likewise certain *chronic intoxications* such as those caused by alcohol, lead, and mercury may give rise to neuralgia, probably in the same way. General *malnutrition or exhaustion* from overwork, worry, or mental shock may make a person predisposed to neuralgia either from a lessening of the vital forces or from the circulation of toxic exhaustion products in the system. In addition to these causes which would render a previously healthy person liable to a development of this disorder, we have that large class of persons who have from infancy inherited a *weakened nervous system*. We term this condition neurasthenia or hysteria according to which class of symptoms later develop, but in this class of cases there is a highly irritable condition of the nerves and an exaggerated reaction to an external stimulus. Whether the underlying cause for the development of this state be heredity or environment, we must take it into account in our treatment of the case.

Having a predisposed nervous system, or even without it, we must have as a general rule some source of local irritation. In the class of cases under consideration associated with pain over and around the eye, the irritation must take place somewhere along the course of the first division of the fifth cranial nerve. This branch it will be remembered arises from the Gasserian ganglion at the base of the brain in company with the other two roots. It passes forward alongside the cavernous sinus, and before leaving the skull divides into lachrymal, frontal and nasal branches, which pass to the orbit through the sphenoidal fissure. The lachrymal branch traverses the outer part of the orbit and innervates the lachrymal gland and the conjunctiva and skin at the outer canthus of the eye. The frontal branch passes forward near the roof of the orbit to the supraorbital foramen or notch, emerging as the supraorbital nerve, having previously given off the supratrochlear branch which emerges at the inner angle of the orbit. This branch supplies the skin and mucous membranes of the forehead, eyebrow and upper lid as far up as the vertex of the head, and extends inward to the

midline. The nasal branch passes along the nasal wall of the orbit and enters the ethmoid through the anterior ethmoidal foramen, and is distributed to the mucous membranes of the nose and most of the accessory sinuses. In its course branches are given to the ciliary ganglion, as well as the long ciliary nerves, which supply the sensory nerves to the eyeball. In the course of this nerve there are frequent anastomoses with other branches of the fifth cranial nerve which perhaps explains why irritating lesions arising in the course of the latter may have the pain transmitted and referred to some distance from its source.

So in the investigation of pain arising along the distribution of this nerve, we must bear in mind the organs supplied by it, and be sure that no local trouble exists therein, before we are justified in referring a case of neuralgia solely to a general cause. This investigation involves an investigation of the nose with its accessory sinuses, the eye, the teeth, and the ears.

There is one type of trigeminal neuralgia, however, that seems to be an exception to the general rule of a neuralgia being excited by some form of peripheral irritation. This is the terrible *douloureux* or so-called epileptiform neuralgia. The limits of this article admit only of noting the occurrence of this malady, which in all its clinical features is a disease apart. While its earliest manifestations may be only those of a simple neuralgia, and unavailing efforts are made to remove a possible source of local trouble, soon the full picture presents itself, unmistakable in its entirety. The disease is apparently a neuritis of some part of the fifth nerve, although repeated careful microscopic examinations of the Gasserian ganglia and portions of nerves removed at operation have failed to demonstrate a lesion capable of causing the symptoms. Although at the onset only a single focus may be affected, very soon, however, all three branches of the trigeminal nerve become more or less affected with the lightning paroxysms of pain, and the patient drags on a miserable existence, dreading every change in the weather and external surroundings for fear of adding to his tortures.

Tumors of the cranial nerves or meninges may by implication in the growth or by pressure on the nerve cause neuralgic pains very hard sometimes to diagnose and especially to differentiate from some of the less dangerous peripheral affections. Particularly is this true of syphilitic affections, where a gumma pressing on the nerve can cause a most intense and intractable neuralgia, until its true nature is understood and proper treatment instituted. I have a case now under my care of a patient who had suffered the tortures of the damned for two or three months before proper antisiphilitic treatment had been instituted. As a rule, lesions of this nature are associated with more or less anesthesia in the

distribution of the nerve, and in all these intractable cases the sensation of the face should be carefully tested to see whether or not the symptoms may be caused by an undiscovered neoplasm. It is not enough to wait for further nerve involvement; to do good in these cases we must treat them as early as possible.

As has already been indicated, an outbreak of herpes ophthalmicus may cause most severe neuralgic pains in the distribution of the nerve affected. This pain generally comes on for several hours or even days before the outbreak of the eruption, and may persist for weeks after its subsidence. The well-defined eruption of groups of small vesicles on a more or less raised reddish base, and sharply limited to the distribution of the first division of the fifth nerve, should serve to differentiate this malady, but I am convinced by conversation with several practitioners that this affection is often wrongly diagnosed. The feature in diagnosis that has been the most helpful to me is the sharp limitation of the eruption to one side of the forehead, the almost sharp line of demarcation down the midline, and the often implication of the conjunctiva and eyeball. These characteristics are distinctive and may serve to diagnose the case even before the eruption develops into its full herpetic aspect.

Study of the accessory sinuses of the nose in late years has shown first that sinus inflammation is much more common than it used to be considered, and second, that sinusitis is the cause of many of the acute and chronic troubles of the nose and adjoining structures which had formerly been ascribed to other causes. The dentists were the first to call attention to the frequency of antrum infection, but it has remained for the late development of the specialty of rhinology to demonstrate the true importance of sinus involvement. These residual remains of the olfactory organ found in some lower organisms have in the process of evolution been gradually more and more closed off from the nasal chambers, until in man they only communicate by a very small opening. Generally, too, the opening of this walled-off space is placed far up on the lateral wall at a point very disadvantageous for either ventilation or drainage. Inflammation of the lining mucous membrane, therefore, becomes an important pathological process, as the pent-up discharges can only be relieved by bursting through a thin place of the wall, or by discharge through a most disadvantageous point of drainage. Particularly is an epidemic of influenza or some of the infectious diseases liable to be followed by sinus involvement.

The sinuses most often affected are the frontal sinus, the anterior ethmoidal sinuses, and the antrum, although the posterior ethmoidal and the sphenoidal sinuses may be involved. Very often the infection is not limited to a single

sinus but a group of sinuses often take part in the inflammatory process.

Frontal headache limited to or originating on one side of the head is a common complaint in sinus disease. Leaning the head forward or to the side often aggravates the pain. The patient often describes his complaint as a full feeling or a sense of pressure in the affected part. Due to the accumulation or discharge during the night or while in a reclining posture, the pain is usually worse just on arising and at times is most intense. There is often an associated dizziness or slight vertigo. There may or may not be an associated rise of temperature, depending upon the acuteness and character of the infecting process. There is generally a more or less profuse nasal discharge, often limited to one side of the nose, and it is by tracing this discharge to its source that the affected sinus is located. The discharge may be either purulent, as it generally is in these cases, or mucus or mucopurulent in the milder cases. Very rarely there may be redness and swelling over the affected part, but this is not at all a diagnostic sign, and should never be waited for as it shows a late manifestation of the disease. There is generally tenderness on pressure over the thinnest part of the covering of the affected sinus. In the frontal sinus this is just under the roof of the orbit at the inner angle, and the pressure should be made with the tip of the finger in an upward direction. In involvement of the anterior ethmoidal sinuses, the pressure to elicit pain should be made at the inner angle of the eye, a little deeper than the canthus, and should be directed inward toward the nose. When the maxillary sinus or antrum is involved, while there may be tenderness over the cheek bone or in the canine fossa, the diagnosis is generally made by puncture with a special aspirating needle into the affected sinus and washing out the cavity. Of late years, radiography and transillumination of the sinuses with small electric lights has been used in diagnosis, but the careful clinician does not need these aids except for a refinement of diagnosis or where extensive operative procedures have to be taken.

Refractive errors of the eyes are frequent causes of brow ache. This is so well recognized by the laity that they often of themselves seek relief from glasses. While they generally describe their symptoms as a headache over the eyes and extending to the back of the neck, still the most intense neuralgic pain I ever encountered in this region was in a woman with an aggravated case of astigmatism. She had driven in from a nearby village and the ride had set up a most intense pain over both eyes. She went to the house of a friend and was put to bed when I saw her. The room was darkened and she seemed to be in the most intense agony. It only needed the instillation of a mydriatic in her eyes and a quieting powder to entirely relieve her symptoms,

and the next day her glasses were fitted with the mydriatic. Since that time she has had perfect relief from the severe neuralgic pains which had kept her a semi-invalid for the past six or seven years. This is not at all a rare instance but is the frequent experience of every oculist who does careful refractive work. But there is this comment to make, that in these severe cases attended with much pain, particularly in young adults, careful and accurate work is impossible without a mydriatic as the ciliary muscle is in a constant state of spasm. We must educate our patients to its use, for even now we find a widespread fear of it. Astigmatism, particularly against the rule, is most often the cause of these painful brow aches, although farsightedness or muscle imbalance may be the seat of the trouble. Whatever the abnormality, it must be carefully corrected, as even a slight variation from the exact correction is insufficient to relieve the symptoms.

Of diseases of the eyeball attended by pain referred to the eyebrow, glaucoma is the one most liable to be overlooked by the general practitioner as it is attended by no outward visible manifestations. But the physician can easily accustom his finger tips by testing the tension of his own eyes and if he once can recognize the stony hard condition of a glaucomatous eye and tests for it in cases of supra-orbital neuralgia not plainly due to some other cause, these cases will not be neglected. Corneal ulcer, and iritis are associated with a most intense and deep seated pain over the eyes and radiating back to the temples, but the redness of the eyeball should serve to direct instant attention to the eye as the seat of the trouble.

Owing to the numerous anastomoses of the branches of the fifth nerve it often happens that a lesion occurring in the distribution of one branch may have the pain referred to the distribution of another branch far removed from its source. For this reason the teeth should be carefully examined for disease as well as the ears. Pain is a hard thing to definitely locate, and after a patient has suffered for a time it has radiated over a much larger area than was at first involved.

In the treatment of all these cases the first thing to do is to seek out the exciting cause and relieve that by appropriate treatment. Generally this is sufficient to cause relief and put at an end the trouble. Should there be a diseased general condition of the body it should of course be built up by tonics or measures to relieve the trouble. For temporary relief various members and combinations of the acetanilid or antipyrine group are of great assistance, but opium or its alkaloid may have to be used before relief is obtained. Local applications of hot water bags, hot

fomentations or poultices materially assist. A solution of equal parts of chloral hydrate and camphor rubbed together in a warm mortar and applied on a piece of cloth over the affected nerve dulls the pain. Some men advise spraying the nerve distribution with a spray of ethyl chloride, a few applications of which put an end to the pain. Some men rely greatly on applications of electricity in its numerous ways of treatment but I am rather skeptical as to much permanent good from its use.

The diagnosis of these conditions is the first essential in treatment. To the busy doctor who has every hour filled with its duties, it is an easy matter to pass over these cases and treat them symptomatically, but in the head, as elsewhere in the body, pain is a symptom of disordered function and there must be some abnormality to cause it to arise.

### "A CASE OF TETANUS," TREATMENT AND RECOVERY.\*

By P. M. NEARY, M.D.,  
CORTLAND, N. Y.

**J**ULY 13, 1910, about 7 A. M., I was called to see Teresa Canesterara, the four-year-old daughter of Carmine Canesterara, of No. 5 Dunsmore Avenue, this city. She was a vigorous child and came from vigorous stock.

The history of the case as given by the parents was that she had been having sore throat for the past two days, and could swallow neither food nor water, and they could neither open her mouth nor get her to open it.

As soon as I touched her she had a paroxysm of tonic spasm. The muscles of her jaws, neck, back, legs and abdomen were rigid and very hard, and head drawn slightly backward.

I asked the parents if she had received an injury to hand or foot within a week or two, and I was told that on July 3d she received a wound of right foot near the heel. The case was plainly one of traumatic tetanus.

From the fact that there were many children and much noise in, near and around the house, and knowing I would probably be unsuccessful in getting her into the hospital, I gave a positively unfavorable prognosis to the parents very promptly—saying unhesitatingly to them that their little daughter would die in a few days.

This, of course, alarmed them, and they were ready and willing to do anything within their power, except to have her taken to the hospital.

I called in to see her, Drs. Reese, Higgins, Ver Nooy and Walsh. All agreed that antitoxin was the thing to use and use promptly and heroically.

In less than one hour from the time the call came 10,000 units of tetanus antitoxin had been administered.

Dr. Reese incised and cared for surgically the site of the old wound.

Directions were given the parents regarding quiet, air, cleanliness, water, food, etc. In the meantime, the city physician had telegraphed to the State Department of Health for more antitoxin.

This was furnished freely and promptly, and I feel that the success in handling the case was largely due to this fact.

Antitoxin was administered once in twelve hours for two weeks, 10,000 units at each time. In all 280,000 units were administered. Of this amount 270,000 units was furnished by the State Department of Health, and one dose of 10,000 units of Mulford's was administered at one time owing to the fact that the state supply gave out for one-half day.

Four modes of administering are suggested by the State Department of Health, no one of which precludes the use of any or all the others:

*First.*—Subcutaneously.

*Second.*—Intravenously.

*Third.*—Direct injection into the frontal lobes of the cerebrum or the lateral ventricles.

*Fourth.*—Injection by lumbar puncture between the third and fourth lumbar vertebrae.

The subcutaneous mode was used in this case, the serum being injected directly into the muscles of the anterior surface of the body—the abdominal muscles.

This mode was selected because it seemed less formidable to me, and also because I had no nurse to assist me with the case.

Care, of course, was exercised in thoroughly cleaning the skin with soap and water, then alcohol. Syringe and needles were thoroughly sterilized and there was not even the slightest redness in the region of any one of the thirty punctures that had been made.

We are advised by the Health Department to administer 10,000 units to 20,000 units every six to eight hours, but my patient was small and I thought 20,000 daily enough.

The patient took very little liquid nourishment but plenty of water from a spoon, sucking it in between the teeth, with head thrown back.

Very little medicine was given—when paroxysms were very severe and frequent a very small amount of morphine was administered, a few times only.

Temperature during two weeks ranged from 100 deg. to 104 deg.; pulse from 110 to 150. Respiration from 30 to 60.

July 16th I succeeded in getting her into the hospital and keeping her there for twenty-four hours. She was so restless and parents so dissatisfied I allowed them to remove her home the following day.

\* Read at the annual meeting of the Sixth District Branch, at Cortland, September 27, 1910.

Here are some of the bedside notes taken while at the hospital:

"Patient admitted. Body very rigid, begs for water and moans constantly, severe convulsions, very restless, begs to be taken home. Dismissed."

Muscular rigidity began to disappear after ten days' treatment.

July 26th I wrote the State Health Department asking how long it would be advisable to continue the antitoxin treatment.

I received a reply the next day saying to continue till rigidity had disappeared unless I saw a systemic condition which would indicate a cessation of the treatment. At just this time the renal function became disturbed—only a few ounces of urine in twenty-four hours of specific gravity 1035, but no albumen.

Diuretics were given, especially more water, and this soon passed away and serum treatment discontinued, as rigidity was now rapidly disappearing. More nourishment and tonics now soon put flesh on her frame and color in her cheeks. August 2d she began walking—at first a little stiff and wobbly but gaining rapidly so that in two months' time from date of infection she was as well as ever—being again a bright, sturdy, rosy-cheeked Italian lass.

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## Medical Society of the State of New York.

### DISTRICT BRANCHES.

#### MEETINGS TO COME.

First District Branch—Thursday, October 27th, at Newburgh.

Second District Branch—Friday, October 21st, at the Staten Island Club, New Brighton.

Fifth District Branch—Wednesday, October 19th, at Syracuse.

#### SECOND DISTRICT BRANCH.

FOURTH ANNUAL MEETING AT THE STATEN ISLAND CLUB, NEW BRIGHTON, STATEN ISLAND, OCTOBER 21, 1910.

#### SCIENTIFIC PROGRAM.

"24, 48 and 72 Hour Pneumonias in Children," Le Grand Kerr, M.D., Brooklyn.

"The General Practitioner and Pulmonary Tuberculosis," A. Jacobi, M.D., New York.

"The Work of a Country Health Officer," W. A. Baker, M.D., Islip

"Cæsarean Section," Wm. Bryan, M.D., New Brighton.

#### FIFTH DISTRICT BRANCH.

ANNUAL MEETING AT SYRACUSE, N. Y.,

WEDNESDAY, OCTOBER 19, 1910.

MORNING SESSION, 10 A. M.

President's Address, T. H. Halsted, M.D., Syracuse.

"Common Sense in the Rearing of Children," C. A. Frost, M.D., Utica.

"Recognition and Treatment of Acute Mastoiditis," G. H. Rockwell, M.D., Syracuse.

"The Relation of the General Practitioner to Refraction of the Eye," T. H. Farrell, M.D., Utica.

"Psychology of Tuberculosis," W. H. Kidder, M.D., Oswego.

"Tuberculosis from the Standpoint of the General Practitioner," H. K. Kerr, M.D., Watertown.

"Tuberculous Peritonitis," N. Jacobson, M.D., Syracuse.

"Treatment of Diffuse Peritonitis," G. D. Gregor, M.D., Watertown.

"The Abuse of Obstetrical Forceps," J. M. H. Rowland, M.D., Baltimore.

"Some of the Nervous and Mental Effects of Chronic Masturbation Among Boys" Chas. Bernstein, M.D., Rome.

"Abdominal Pain and its Diagnostic Significance," L. Kast, M.D., New York.

"The Sero-diagnosis of Syphilis, Using the Noguchi System. Results in a series of cases," W. A. Groat, Syracuse.

"The New Treatment of Syphilis (Ehrlich-Hatta) Observations and Results," H. L. Elsner, M.D., Syracuse.

"Surgery of Neurasthenics," W. E. Ford, M.D., Utica.

"Functional Albuminuria," I. O. Nellis, M.D., Herkimer.

"Parkinson's Disease," S. Baker, M.D., Utica.

"Some Observations on the Colon," C. E. Coon, M.D., Syracuse.

The members of the Fifth District Branch, and all attending physicians are invited to be the guests of the Onondaga Medical Society at a luncheon which will be served at the Onondaga Hotel at 1 P. M.

In the evening at 8 P. M., a dinner will be given at the same place, to which all members of the Fifth District Branch, and of the Central New York Medical Society (which meets in Syracuse the following day) are invited.

On Thursday, October 20th, a luncheon will be tendered the Central New York Medical Society by the Onondaga Profession, and to which all members of the Fifth District Branch are cordially invited.

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## COUNTY SOCIETIES.

### THE MEDICAL SOCIETY OF THE COUNTY OF CHEMUNG.

REGULAR MEETING, SEPTEMBER 20, 1910, AT ELMIRA.

Dr. G. V. R. Merrill presented the following resolutions, which were incorporated in the minutes of the meeting:

WHEREAS, The study of the functions of the nervous, glandular, and circulatory systems in man, the effects of remedial agents, and the world-wide benefits of serum thereby have been immeasurably advanced and made possible by previous study, trial and use in the lower animals, and,

WHEREAS, The charge of unnecessary cruelty, or, in fact, any cruelty at all in such work by scientific investigators, made by anti-vivisection societies is untrue, and based upon ignorance, pseudo-sentiment and misrepresentation, therefore be it

Resolved, That the Medical Society of the County of Chemung views with supreme pity and extreme disgust the efforts of so-called reformers to deprive by legislative act, benefits of incalculable value to the whole human race, gained by laboratory use of the lower animals in experimentation and scientific research.

Resolved, That the Secretary of this Society be and is hereby authorized to request our Assemblyman and

State Senator, when elected, to oppose and do all in their power to defeat any measure with the above named object in view that may be introduced in the coming session of our State Legislature.

## SCIENTIFIC SESSION.

"Passive vs. Active Methods of Diagnosis," C. L. Squire, M.D., Elmira.

"Bier's Hyperemic Treatment," R. G. Loop, M.D., Elmira.

"Report of Case of Intestinal Obstruction," A. J. Westlake, M.D., Elmira.

## RICHMOND COUNTY MEDICAL SOCIETY.

REGULAR MEETING, SEPTEMBER 14, 1910.

"Practical Infant Feeding for the General Practitioner," Godfrey R. Pisek, New York City.

## MEDICAL SOCIETY OF THE COUNTY OF SARATOGA.

ANNUAL MEETING, SEPTEMBER 20, 1910, AT SARATOGA SPRINGS.

The following officers were elected for the ensuing year:

President, J. S. White, South Glens Falls; Vice-President, W. S. Donnelly, Ketchum Corners; Secretary, J. T. Sweetman, Jr., Ballston Spa; Treasurer, T. E. Bullard, Schuylerville; Censors, E. Zeh, A. S. Downs and L. A. Parmenter; Delegate to State Society, J. T. Sweetman, Jr., Ballston Spa; Alternate, F. A. Palmer, Mechanicville; Delegate to District Branch, W. C. Crombie, Mechanicville; Alternate, W. B. Webster, Schuylerville.

## SCIENTIFIC SESSION.

President's Address, G. Hudson, M.D., Stillwater.

"Paratyphoid Fever," G. P. Paul, M.D.

"Presentation of a Case," F. A. Palmer, M.D., Mechanicville.

"Report of a Case," D. C. Moriarta, M.D., Saratoga Springs.

"Report of a Case," G. F. Comstock, M.D., Saratoga Springs.

## BOOKS RECEIVED.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE SURGERY OF CHILDHOOD, including Orthopædic Surgery. By DE FOREST WILLARD, A.M., M.D. (Univ. of Pa.), Ph.D., Professor of Orthopædic Surgery, University of Pennsylvania; Surgeon (26 years) to the Presbyterian Hospital; Surgeon-in-Chief, Widener Industrial School for Crippled Children; Ex-President American Surgical Association, American Orthopædic Association, Philadelphia Academy of Surgery, Philadelphia County Medical Society; Ex-Chairman, Surgical Section American Medical Association, Fellow Philadelphia College of Physicians, etc., etc. With 712 illustrations—including 17 in colors. Philadelphia and London. J. B. Lippincott Company.

LIPPINCOTT'S NEW MEDICAL DICTIONARY. A vocabulary of the terms used in Medicine and the Allied Sciences with their pronunciation, Etymology, and Signification, including much collateral information of a descriptive and encyclopædic character. By HENRY W. CATTELL, A.M. (Laf.), M.D. (U. of P.), Editor of *International Clinics*, Fellow of the College of Physicians of Philadelphia, etc. Freely illustrated with figures in the text. Philadelphia and London. J. B. Lippincott Company.

PRACTICAL NURSING for male nurses in the R. A. M. C. and other forces. By Major E. M. HASSARD, R. A. M. C., and A. R. HASSARD. London. Henry Frowde. Oxford University Press. Hodder & Stoughton, Warwick Square, E. C. 1910.

PRACTICAL OBSTETRICS. By E. HASTINGS TWEEDY, F. R. C. P. I., Master of the Rotunda Hospital, and G. T. WRENCH, M.D., Late Assistant Master. Second edition. London, Henry Frowde, Oxford University Press. Hodder & Stoughton, Warwick Square, E. C. 1910.

HISTORY OF MEDICINE. By MAX NEUBURGER, Professor of Medical History in the Imperial University of Vienna. Translated by ERNEST PLAYFAIR, M.B., M. R. C. P. In two volumes. Vol. I. London, Henry Frowde, Oxford University Press. Hodder & Stoughton, Warwick Square, E. C. 1910.

A MANUAL OF OBSTETRICS. By A. F. A. KING, A.M., M.D., LL.D., Professor of Obstetrics in the Medical Department of the George Washington University, Washington, D. C., and in the University of Vermont; President (1885-86-87) of the Washington Obstetrical and Gynecological Society; President (1883) of the Medical Society of D. C. 1903; Fellow of the American Gynecological Society; Consulting Physician to the Children's Hospital, Washington, D. C., Obstetrician to the George Washington University Hospital; Member of the Washington Academy of Sciences, Member of the Royal Society of Medicine, Fellow of the American Association for the Advancement of Science, and Member of the Medical, Philosophical, Anthropological, and Biological Societies of Washington, D. C., etc. Eleventh edition, revised and enlarged. With 341 illustrations in text and three plates. Lea & Febiger, Philadelphia and New York. 1910.

A MANUAL OF HYGIENE AND SANITATION. By SENECA EGBERT, A.M., M.D., Professor of Hygiene and Dean of the Medico-Chirurgical College of Philadelphia; Member of the Academy of Natural Sciences of Philadelphia; Member of the American Medical Association, etc., etc. Fifth edition, enlarged and thoroughly revised. Illustrated with 97 engravings. Lea & Febiger, Philadelphia and New York. 1910.

ANATOMY, DESCRIPTIVE AND APPLIED. By HENRY GRAY, F. R. S., Fellow of the Royal College of Surgeons; Lecturer on Anatomy at St. George's Hospital Medical School, London. Eighteenth edition, thoroughly revised and re-edited with additions by EDWARD ANTHONY SPITZKA, M.D., Professor of General Anatomy in the Jefferson Medical College, Philadelphia. Illustrated with 1,208 engravings. Lea & Febiger, Philadelphia and New York. 1910.

THE PRINCIPALS OF PATHOLOGY. By J. GEORGE ADAMI, M.A., M.D., LL.D., F.R.S., Professor of Pathology in McGill University, and Pathologist-in-Chief to the Royal Victoria Hospital, Montreal; late Fellow of Jesus College, Cambridge, England. Volume I. General Pathology. Second edition, revised and enlarged, with 329 engravings and 18 plates. Lea & Febiger, Philadelphia and New York. 1910.

A MANUAL OF TOXICOLOGY. A concise presentation of the Principles facts relating to poisons, with detailed directions for the treatment of poisoning. Also a table of doses of the principal and many new remedies. By ALBERT H. BRUNDAGE, A.M., M.D., Ph.D., M.S., Professor of Toxicology and Physiology in the Departments of Medicine, Dentistry and Pharmacy of Marquette University. Formerly, President of the Board of Pharmacy of the State of New York and Examiner in Toxicology in same; etc. Honorary member of the Brooklyn (N. Y.) Medical



Society; Life member of the New York State Pharmaceutical Association; Member of the American Medical Association, the American Microscopical Society, the American Association for the Advancement of Science, etc. Seventh edition, revised and profusely illustrated. New York. The Henry Harrison Co., 70 Linden Street, Brooklyn-New York. London, Baillière, Tindall & Cox, 8 Henrietta Street, Convent Garden. 1910.

SYMPTOMATIC AND REGIONAL THERAPEUTICS. By GEORGE HOWARD HOXIE, A.M., M.D., Professor of Internal Medicine and Dean of the Clinical Department in the School of Medicine of the University of Kansas; Member of The American Academy of Medicine, American Medical Association, etc.; President, 1909-1910, of Association of American Medical Colleges. With fifty-eight illustrations in text. New York and London. D. Appleton and Company. 1910.

A TREATISE ON DISEASE OF THE EYE. By JOHN E. WEEKS, M.D., Professor of Ophthalmology in the University and Bellevue Hospital Medical College (Medical Department of New York University); Surgeon to the New York Eye and Ear Infirmary; Member of The American Ophthalmological Society; Honorary member of the Royal Hungarian Medical Society of Budapest, etc. With 528 engravings and 25 full-page plates in colors. Lea & Febiger. New York and Philadelphia. 1910.

## BOOK REVIEWS.

A PRACTICAL TREATISE ON OPHTHALMOLOGY.\* By L. WEBSTER FOX, M.D., LL.D., Professor of Ophthalmology in the Medico-Chirurgical College; Ophthalmic Surgeon in the Medico-Chirurgical Hospital, Philadelphia, Pa.; Member of the Army Reserve Medical Corps, etc. With six colored plates and 300 illustrations in text. New York and London, D. Appleton & Company. 1910.

The book, which is one of over 800 pages, well printed in clear type, on good paper, will fully repay its purchaser. It is easily read, the language of the text being clear, concise and to the point, without superfluous words. The illustrations are profuse and are all good. Many of them, which are original, are excellent.

Naturally, much that is in the book can be found in other works on ophthalmology, for there is not enough of the new to warrant a work of this size if there were not other reasons for its use. Whatever there is new in the book is an expression of the thoughts and ideas of its author, which, alone, are of sufficient value to warrant its publication. There is nothing in the book to which serious objection can be made except the article on "Methods for the Determination of the Refraction of the Eye." Aside from this the reviewer takes pleasure in endorsing the work and in recommending it to the profession.

Even the article in question will find many endorsers, and in some sections of the United States will doubtless receive the endorsement of the majority of ophthalmologists.

The part to which the present reviewer takes especial exception is the statement made at the top of page 639, where one gets the impression that the author of the book recommends that a mydriatic should be used in all patients under forty-five years of age. On page 636 this statement is called into question by the author himself, who says that a cycloplegic is dangerous after forty years of age.

In the opinion of the present reviewer the use of mydriatics, or cycloplegics, as a routine practice in de-

termining the refraction of the eye is unwarranted, and, except in special cases, produces no good effects and confers no knowledge which could not be obtained without its use.

The refraction of the eye can be determined by the use of the trial case and the ophthalmoscope sufficiently accurately for all practical purposes, unless, perhaps, we except astigmatism, in which case the ophthalmometer of Javal gives rapid and accurate information, which, in the large majority of cases, in the reviewer's experience, is more accurate than can be obtained by the use of cycloplegics and the retinoscope. That there are cases, as for instance, in young children, where mydriatics are essential for the correct determination of the refraction and sometimes in older patients where cycloplegics are indicated for their therapeutic effect, even where no disease exists, the reviewer concedes to be the fact, but to advocate the routine use of these drugs in all cases of refraction in patients under forty-five years of age, the reviewer cannot endorse, nor does he believe it to be doctrine or good practice.

Aside from this the reviewer recommends this book to his colleagues, expecting himself to consult it frequently. F. VAN F.

CONSUMPTION—Its Prevention and Home Treatment. A guide for the use of patients, by HYSLOP THOMSON, M.D., Medical Superintendent Liverpool Sanatorium. London, Henry Frowde, Oxford University Press, Hodder & Stoughton, Warwick Square, E. C. 1910.

We have here a carefully selected set of rules for the guidance of the consumptive undergoing home treatment. For the large number of patients of this class, who are forced to stay at home, and who cannot afford to live in health resorts, a few rules for exercise, rest, diet or employment are desirable. They are given here with excellent brevity and conciseness, and with an air of hopefulness so grateful to the average consumptive temperament. Many of the setbacks and disappointments that happen to these patients would be avoided, if the rules laid down here were carefully followed.

Comparing this book with one well-known in this country, written with almost the same object in view, and sold at twenty-five cents, we find here all that *must be known* and followed, to insure success in home treatment, and not everything that *might be* of interest. In this way the amount of matter to be read by the patient, or nurse is reduced to less than seventy pages. But though the publisher's price in England is two shillings, it is sold in this country for a dollar, at least, that was the experience of a friend who was advised to get it. Now, while the family doctor might keep a spare copy of the book mentioned above at twenty-five cents, to sell, or loan, or give away on a rare occasion, one could hardly do that with a book at a dollar. The book is really a valuable one, we might even call it a gem, but unfortunately our consumptive patients undergoing home treatment are not often able to buy gems. PETER SCOTT.

DE L'ILLUSION. Son Mécanisme Psycho-social. Par Le Prestidigitateur ALBER. Avec une préface de RAYMOND MEUNIER. Par., Bloud & Cie., 1909. iii, 118 pp. 12 mo. (Bibliothèque de Psychologie expérimentale et de Métapsychie.)

Raymond Meunier, editor of this series of monographs, presents the professional prestidigitator Alber, as best fitted to explain the illusions, voluntary and involuntary, which play so large and unsuspected a part in our daily lives; to analyze the mystifications wrought by mediums and to show psychologically how professional wizards illusion their public. As the child craves fairy tales and the savage creates deities, so does man always delight in being the willing dupe of the marvellous and the unexplained. It has been said that prestidigitation consists in making the audience see

\* The following review was, owing to a clerical error, printed in the August number of the JOURNAL as applying to "A Treatise on Ophthalmic Surgery," by Charles H. Beard. It should have applied to Dr. Fox's book.

what does not exist and refrain from seeing what does exist, but a better definition would be making one believe in a phenomenon in apparent contradiction to one's habit of judgment. To create an illusion, in distinction from simple jugglery, the mind and reason must be appealed to, but reasoning on a false or substituted basis. To create this false basis by tricking one sense, and then appeal to reason by presenting an evident fact to another sense is the task of the illusionist, and the present volume could be recommended to anyone interested in parlor or public entertainments of this sort. Quite an exhaustive study and analysis of the necessary qualifications of the entertainer is given; as well as advice on many unexpected opportunities to be suddenly taken advantage of, and a psychological study of the characteristics and vulnerable points of the average audience.

Illusions may be divided into two main classes. First, Those both felt and produced by one and the same person; these may be either of the mind or of a sense. As type of the latter we may quote the sensation of two distinct balls perceived when one crosses two fingers and applies the tips to a ball. An illusion of the mind is self-produced when one buys a lottery ticket and by force of thinking and wishing arrives at believing it certain that he will win. The second class comprises the illusions produced on an individual by external objects or other individuals. In both classes are to be found illusions tricking any or all of the senses, but most especially sight; though the more complete the illusion the more senses must be appealed to simultaneously. Under the first class also may be placed many ordinary forms of involuntary illusions; such as the fisherman believing his own exaggerations by force of repetition; actors coming to believe themselves the characters of their favorite rôles, and our believing that we send souvenir postals to give pleasure to our friends when it is really to gratify our vanity in showing where we have traveled.

A large audience is usually more responsive than a small, on account of the effect developed by auto-suggestion after one or two individuals have become infected with emotion or excitement, and it is the aim of the illusionist to excite in a few persons emotion of some sort, whether by laughter, fear or anxiety, so that this factor may spread an emotional state through the whole. In many ways the intelligent are more easily deceived than the ignorant, and there are some tricks which absolutely cannot be foisted upon the latter. Most interesting is the detailed explanation of the mediumistic manifestations and materializations, and of the standard illusions of professional prestidigitators.

ROBERT KINGMAN.

TRAVAIL ET FOLIE. Influences Professionnelles Sur l'Étiologie Psychopathique. Par les Drs. A. MARIE and R. MARTIAL. Par., Bloud & Cie., 1909. xi, 100 pp. 12 vo. Price: Paper, 1 fr. 50, net. (Bibliothèque de Psychologie expérimentale et de Métapsychie.)

The object of this study is to determine the part that work, both manual and intellectual, has to do in causing the various psychoses; and to determine the proportion of workers affected in comparison with the total number of those who work in each trade or profession. Historically the first investigation of this sort is to be noted in 1817; a number of subsequent ones are mentioned, especially the report of the British Commission in Lunacy 1891-5, which all seem to indicate, as does the work of the present authors, that professional intoxications are a large causative factor in psychoses, and that among many diverse forms of the latter found, General Paralysis is one of the most frequent. The evolution of medicine, and particularly mental medicine, toward sociology and the need for the study of etiology in social life and manners rather than in the laboratory, is outlined in

the form of a very pessimistic chapter on the present social strife of man against man, showing that he kills, dupes, injures, exploits and deceives his fellows instead of warring on animals as formerly. To forestall criticism and to assure the reader that this work is deserving of great credit in spite of any apparent defects, the authors call attention to a long list of difficulties encountered in obtaining matter for its preparation. A chapter is devoted to considering conditions which are to be found as the necessary concomitants of many trades and which act as predisposing causes of psychoses—traumatism, infections, poisons, overwork, lack of hygiene, etc. Another chapter takes up lightly the different forms of psychoses which may appear among workers, and much space is devoted to the defence and establishment of other causes than syphilis for general paralysis, which probably acts only like alcoholism and professional intoxications in paving the way for the latter.

The authors' inquiries concern 9,503 males committed in twenty-two years to the retreat of Villejuif; imbecility and idiocy are of course excluded as usually preventing any regular work. An extensive table presents the list of trades and professions and the number of cases of each form of insanity found in each line; tables likewise showing the total number registered in each line, the number of alienated and consequent percentage; and also a series of tables indicating the proportion of the congenitally affected, the predisposed, the debilitated, those having functional psychoses, and those having G.P. or tables all in relation to each associated group of trades, and in relation to the total number of employed in each group. The disorders most frequently found among workers are stated to be mental debility, melancholy, intellectual weakening, para-syphilis and ethylic delirium. It is also found that in spite of syphilis, para-syphilis, ethylism and hereditary degeneracy the rich support the wear and tear of life better than those obliged to work for a living, which has also been found true in other diseases than the psychoses. The matter in hand, however, seems to have been poorly digested, no important facts are elucidated therefrom and the conclusions do not leave a basis for even subsequent work of value along the same lines. An extensive bibliography is appended.

ROBERT KINGMAN.

RE-EDUCATION PHYSIQUE ET PSYCHIQUE. Par le Dr. H. LAVRAND. Par., Bloud & Cie., 1909. 121 pp. 12 mo. (Bibliothèque de Psychologie expérimentale et de Métapsychie.)

This work of Dr. Lavrand's suggestive rather than didactic, is a helpful stimulus to the employment of non-medical and non-surgical measures in cases which the physician is too apt to neglect as offering little hope of quick improvement, with the result that they drift into the hands of religious and medical quacks who with a little patience and the same methods obtain sometimes strikingly good results. The first half of the book is devoted to a theoretical consideration of the possibilities of re-education, the relation of the mind to the vital processes of the body and the close interrelation of psychology to physiology in its every part. Re-education should be employed where there is incomplete suppression of some function by a lesion; or to educate a supplementary function; to improve rudimentary functions, and to steady and educate functions that act irregularly. He discards the theory that a soul is necessary to the body, for the idea that the action of the mind is necessary in close relation with every function of the physical body. All acts, even the most material like digestion, are psychic as well as motor. Because an idea always tends to an act, as well as because acts awaken ideas and feelings, and feelings are capable of inducing ideas that will lead on to further acts, re-education to be efficacious must always be employed along combined physical and

psychical lines, though in varying proportions of these two in individual cases. Re-education will include the cultivation of the faculties of control, the proper direction of vagrant tendencies and the avoiding of hasty conclusions, all of which might lead to erroneous opinions and actions.

The second portion is devoted to the practical exposition of conditions adapted to re-education with more or less detailed directions for its employment. Taking first psychic conditions the author discusses determinism and liberty of the will, and believes in a qualified freedom of choice. As the nervous system does not create but only transforms and distributes energy, asthenics have lost good habits of functioning; their energies are badly liberated, transformed or utilized; they have often the wish but not the power to turn desire into action. In these cases in addition to guarding the sources of energy we must combat false ideas, enlarge the field of consciousness, develop auto-criticism, demonstrate the foolishness of prejudices and force the carrying out of certain beneficial acts. Under motor re-education is particularly discussed the treatment in locomotor ataxia, paralysis and the tics; the study of the genesis and characteristics of these latter affections is particularly instructive. Under troubles of language are taken up the various forms of aphasia, deafness and deaf-mutism and this is followed by a section on sensory re-education, valuable more especially for its advice as to re-education in cases of defective hearing. Organic re-education takes up "mental anorexia" and the dietary in these cases in false gastropathies. Particularly suggestive is the advice regarding respiratory, cardiac and circulatory control and re-education, and a plan is outlined for the use of these same means in cases of idiocy.

ROBERT KINGMAN.

A TEXT-BOOK OF PATHOLOGY. Second Edition, Revised. By JOSEPH MCFARLAND, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College of Philadelphia. Octavo of 856 pages, with 437 illustrations, some in colors. Philadelphia and London. W. B. Saunders Company, 1910. Cloth, \$5.00 net; Half Morocco, \$6.50 net.

This is a book of 803 pages, the first 395 of which deal with general pathology and the remainder with special pathology. The number of illustrations remains the same as in the first edition but many of the old cuts have been replaced by new and better ones. Extensive changes and additions are to be noted in the chapters on excretion, trypanosomiasis, spirochetosis and immunity. Adami's classification of tumors is adopted, with modifications by the author. The article on regeneration, the healing of wounds and the regenerative changes in the different organs have been grouped together under one chapter. Many minor changes are also noted in other chapters and the book gives every evidence, as stated in the preface, of having been gone over from cover to cover. The work is an excellent one for the medical student as well established facts are clearly stated and controversial points are not dwelt upon. The paper, printing and illustrations are all first-class. An excellent index adds to the value of the book.

A. M.

L'EVOLUTION PSYCHIQUE DE L'ENFANT. Par le Dr. HENRI BOUQUET. Par., Bloud & Cie., 1909. 100 pp. 12 vo. Price: Paper, 1 fr. 50, net. (Bibliothèque de Psychologie expérimentale et de Métapsychie.)

The life of a child from birth to the age of 3 or 5 years, which constitutes the period of personal or endogenous acquisition, is considered in this work from an objective and somewhat kindergarten point of view. Commencing with the dictum that man is born into the world in a more helpless and incomplete condition than any animal, it could be perused with profit by the

fond mother who imagines her offspring to possess almost superhuman powers of intellect from the day of birth. The fact that man, born in this comparatively immature state, develops later to such heights above the animals makes his process of acquisition most interesting; although this book does not concern itself with the second period of education, roughly speaking commencing at about 4 years, when artificial or exogenous elements play the important part in the development of the psychic life.

At birth the child is purely spinal, exhibiting reflex movements and cries, not elicited by pain or purpose, but by new functions and surroundings suddenly thrust upon him. None of the senses—sight, taste, hearing or smell—are at first present, and our author traces each one individually from its state of absolute abeyance through the different classes of sensations which are first and easiest acquired by each, to their final full development. Touch is one of the earliest to be used both cutaneous and of the mucous membranes; the latter is especially seen in the tongue, and the incessant applying of every possible object to the latter is not for tasting but to learn something of its qualities by touch, a sense so early and fully developed there. Heat and cold, and the pain of pinching and pricking are said to be early observed, in fact before cutaneous touch, which bears out nicely the recent work of I. Loteyko on specific pain endings.

\*Walking is instinctive; its development can be traced from the early purposeless and automatic movements, and it would develop in a child who never saw another walk. Speech, however, also developed from the early purposeless and reflex cries, is imitative, as has been proved by experiments in isolating birds and animals who do not then acquire the characteristic sounds of their race. Under the heading of the Psychology of the Infant is discussed the development and inter-relation of habit and memory; the earliest sensations which are perceived as pleasure or pain, and later the expressions of satisfaction with the former and dissatisfaction with the latter of which the child instinctively makes use before he can intimate them by intelligent speech. Fear is found to be an unnatural emotion to be observed only after the child has met with various little accidents—physical fear—and been regaled or regulated by terrifying stories and threats of his elders—moral fear. Considerable space is devoted to the subject of Fetichism which plays a large part in the early internal and external life of children as it does likewise in all primitive peoples. The realization of truth, beauty, good, evil and the early awakenings of an individual and later a general moral sense are interestingly traced to complete this instructive volume.

ROBERT KINGMAN.

INFECTIOUS DISEASES. A Practical Text-book by CLAUDE BUCHANAN KER, M.D., Ed., F.R.C.P., Ed. Oxford University Press.

It would appear, from a careful perusal of this book, that the time is ripe to discuss the nature of a logical definition. There is one matter, above all others, to impress on the mind of the student of medicine, and that is the necessity for correct definitions—logical definitions. This is the very essence of a correct diagnosis. Such definitions must state the essential characteristics of the matter defined, and exhibit those characteristics which make it to be what it is, and at the same time show wherein it differs from all other matter. That several diseases have common qualities does not show that they are the same, for there may still be an essential quality which belongs to each and which is not common to all. Our definition must state distinctly in addition to the genus, specie, property and accidents—what separates the disease under discussion from all others. Let us apply this rule to the definitions in this book. "Enteric or typhoid fever," is defined, "an acute, infectious, continued fever, characterized by general

toxæmia and by special lesions in the small intestine." Where is the differentia here? It has been omitted. The definition is defective therefore. It should state that the underlying cause is, infection by the Eberth bacillus.

DISEASES OF THE STOMACH AND INTESTINES. By ROBERT COLEMAN KEMP, M.D. With 280 illustrations, some in colors. Philadelphia and London. W. B. Saunders Company. 1910. Price, cloth, \$6.00.

The distinguishing feature of this work is the extensive use made of photography in the description of modern methods of diagnosis and treatment of gastrointestinal disease. Such is the meagreness of the teaching offered by our undergraduate medical schools upon this more recently developed department of medicine a book of this kind is certain to meet with a favorable reception. The pictures are small, but by careful perusal of the text an accurate idea of technic may be gained. While it is particularly the chapters dealing with methods of examination and treatment which are striking, there are others, such as those dealing with gastric dilatation and displacements which are unusual in their clearness and comprehensiveness. The mass of material is very great, but on the whole very well chosen and presented.

Among a comparatively few omissions attention is drawn to a few such as the failure to describe Sahli's butyrometric test meal and the Cammidge reaction. In such a work as this the latter particularly should be discussed and its use advised in doubtful cases if not as a routine.

More stress might well have been laid on the modern teaching of surgery in the right upper quadrant of the abdomen. There is the familiar description of functional abnormalities of the stomach. These are quite necessary but the mistake of looking upon them as diseases rather than as symptoms should be cautioned against more strongly. In the paragraphs dealing with gastric ulcer operation does not seem to be advised for mere persistence. While gastro-enterostomy is not always entirely successful in non-obstructive cases it may well be claimed that the mortality is exceedingly small while the benefit is considerable. Nothing is said of excision, which in properly selected cases is the logical method of treating the chronic type of ulcer. Pancreatic diseases are not discussed at all and in view of the frequency with which they simulate gastric diseases such an omission does not seem justifiable. D. D. R.

BIER'S HYPEREMIC TREATMENT IN SURGERY, MEDICINE AND ALL THE SPECIALTIES: A MANUAL OF ITS PRACTICAL APPLICATION. By WILLY MEYER, M.D., Professor of Surgery at the New York Post-Graduate Medical School and Hospital; and Professor Dr. VICTOR SCHMIEDEN, Assistant to Professor BIER at Berlin University, Germany. Second Revised Edition. Octavo of 280 pages, illustrated. Philadelphia and London. W. B. Saunders Company. 1909. Cloth, \$3.00 net.

This, the second edition, following within little more than a year four printings of the first edition, shows how eagerly this book has been taken by the profession. In this, the second edition, we note the same general arrangement of text as was followed in the first; it is well illustrated, showing various methods of using both the elastic bandage and the cup; the illustrations are practically the same as found in the former edition; the text fully describes the methods to be used in the various inflammations and diseases in which this form of treatment is applicable. A valuable addition is that it gives references to all the notable articles which have appeared from time to time bearing on this form of

treatment; this is arranged chronologically and it makes it very easy for any one desirous of studying the subject to find all articles bearing upon it published up to and including 1908.

While Hyperemic Treatment has limitations beyond those recorded by some of its ardent advocates, it is nevertheless a valuable adjunct in the treatment of diseases, and this book we would highly recommend to those not already familiar to the records of Bier.

H. B. D.

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## OBITUARY.

CHARLES COOK RANSOM, M.D.

Charles Cook Ransom, M.D., died at Utica, N. Y., on the 13th day of September, 1910. He was for many years a practitioner of medicine at Richfield Springs, and latterly in New York City. Dr. Ransom was born in Richfield Springs, August 1, 1860, and was graduated from the Medical Department of the University of Buffalo in 1883; after his graduation he spent years abroad following his profession in the study of the Spa treatment of diseases of the skin and also the hydrotherapy of joint diseases. For several years after taking up his residence in New York City he was associated with the late Dr. Seneca Powell. Deeply interested in the treatment of gouty and allied conditions, he established on a firm footing the bath treatment for these conditions at Richfield Springs, which place was developed under his management. Dr. Ransom was a member of the American Medical Association, American Climatological Society, New York Academy of Medicine, New York State and County Societies, West End Medical Society, Century Association and various other medical and social organizations. He has written extensively on the causation and treatment of gout. For a number of years he had been connected with the City Hospital as attending physician and on several occasions occupied the position of President of the Medical Board of that institution. As President of the Medical Board of the City Hospital he was a member of the Russell Sage Memorial Endowment Fund established for the purpose of the development and research of pathology at the City Hospital.

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## DEATHS.

WILLIAM C. GARDNER, M.D., New York City, died September 28, 1910.

WILLIAM F. HOLTHAUSEN, M.D., Brooklyn, died September, 1910.

CHARLES COOK RANSOM, M.D., New York City, died September 13, 1910.

T. FLOYD WOODWORTH, M.D., Kinderhook, died September 19, 1910.

# NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

ALGERNON THOMAS BRISTOW, M.D., Editor  
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## EDITORIAL DEPARTMENT

### THE CARNEGIE FOUNDATION.

**B**ENEVOLENT intentions sometimes fail to accomplish their purpose. Not infrequently they defeat it. Money cannot at will create a great university. That is a matter of growth. The traditions which cluster around an institution of learning, the memories of its great teachers, the *esprit de corps*, not only of its faculty but of its student body, these things, with the contributions of research and teaching, a precious heritage, are not the mushroom growth of a night. Dollars cannot call them into being. Moreover, a university must grow from within. Its development to be symmetrical, should be natural and expansive. There is an evolution in educational processes as of species and a forcing process applied from the outside may interfere with normal growth. The university should be free to work out its own salvation unhampered and untempted by outside influences. State universities as conducted in this country, unless entirely free from political affiliations and the changing temperament of politics, would soon cease to be institutions of learning and spiritual influence. Freedom of thought, freedom of action, these are the very foundation stones of efficiency and development and if it is unwise for the State, the legally constituted guardian of the liberties of the people, the grantor of the charters of all corporate bodies, whether of commerce or instruction, to dictate the policies and methods of its own universities, what shall we say concerning a foundation itself the creature of the state which arrogates to itself powers not possessed by the State? An oligarchy within a republic is an

anomaly. It is not the less anomalous because its intentions are good if its methods are such as to threaten the freedom of educational institutions.

It is most satisfactory and soothing to the feelings of a hard-worked and poorly paid university professor to feel that his old age is provided for by a benevolent millionaire, but when the Carnegie Foundation compels institutions of learning to change their charters, to modify matters of belief or to suppress them in order to be eligible to a participation in its benefits, may we not at least question the wisdom of such a course? Are we not justified in asking ourselves whither such a policy tends? It is little edifying to the thoughtful mind to hear a college president bemoaning the injustice of the Foundation because his university is debarred from participation on the ground of sectarianism and declaiming loudly that his institution really isn't half as sectarian as another institution of similar beliefs which does participate. What has religious belief to do with faithful service or efficient teaching? Is a man less worthy of an old age pension because he is a Methodist or an Episcopalian? If the State does not dictate in such matters, is it well for a private institution which derives its influence solely from its wealth, to attempt what the State declines? Is not the tendency pernicious and the policy threatening? The universities of this country and their various schools are, to be sure, free to accept or reject the terms offered by the foundation, but the bait is a tempting one and has been swallowed by more than one institution. The incomes of

full professors in most universities is less than \$6,000 a year, of assistant professors, under \$2,000. The president of one of our greatest universities recently expressed it as his belief that the assistant professors ought to get no more than this, because the small salary makes it easy to get rid of them if they are not speedily promoted to a full professorship. Their failure of promotion he ascribes to their unfitness, but he does not describe any humane method of getting rid of the scholar who occupies the full chair to make room for the assistant professor, and he forgets that promotion implies a vacancy. With such salaries and such prospects it is not strange that the bait which the Foundation offers proves attractive. It is not strange that the faculties and boards of trustees are more than anxious to be relieved of the responsibility of caring for men worn out in the service of the university. Our universities are less merciful than our railroads. The railroad corporation pays its more important employees salaries large enough so that with prudence they may lay by sufficient for their old age. For those employees whose wage is insufficient to allow of material saving, it provides a retiring pension fund. The university, however, neither pays the professor sufficient to permit of the saving of a competence nor makes any provision for an old age pension. The assistant professor who has waited long years for a vacancy must "go out and seek his fortune elsewhere" and his senior, when disabled, must get along as well as he can. These are the rewards of the highest grade of intellectual activity.

Now comes the Carnegie Foundation and undertakes what is the plain duty of the university itself, under certain conditions, however, which it lays down. These must be complied with by the participating institutions. They have no voice in framing the conditions. Take it or leave it. This is not intellectual freedom. The whole scheme is unworthy of the acceptance of self-respecting men, but necessity knows no law and more than one institution has been willing to accept the conditions in return for the benefits.

The development of such an institution in our midst is abnormal and unhealthy. An oligarchy has no place in a democracy, nor should the mere possession of or access to great wealth be the means of engrafting in our midst a sort of supreme educational council, self-perpetuating, responsible to no one—in fact, an educational oli-

garchy with the vast inertia of an immense fortune behind it. Trade and commerce have for years been suffering from the dictation of powerful interests which have well nigh outgrown control both of courts and legislatures. The dictation of a central body in educational matters seems a good, not unmixed with evil and evil tendencies. What newspaper in the country would have dared publish on its own initiative, such a wholesale and intemperate criticism of the medical schools of the country as was contained in Bulletin No. IV.? The fear of the laws against libel would have restrained them. When they did comment on Bulletin No. IV., it was always with careful use of quotation marks. The writer recently asked the Sunday editor of one of the important journals of the city whether he would have been willing on the responsibility of his journal to publish certain statements made in the Bulletin. "Not on your life," was his prompt and emphatic answer. What has been the effect on the public of the unsparing and often unjust criticism of medical education promulgated by the Bulletin? The medical profession has been held up to ridicule in the pages of more than one daily paper and we have been told that the doctors are a poor lot. Nowhere in the Bulletin has any credit been given to the medical profession for the earnest and sincere efforts which it has been making this quarter of a century to improve the status of medical education. Have we not laws in every State in the Union, laws compelling the graduate of every medical school to submit to a severe state examination before admission to practice? Who originated these laws? Was it a layman, a teacher of secondary schools? These reforms were initiated before the critic of the Bulletin was out of short clothes, in the State of New York by the Medical Society of the State of New York and have extended throughout the United States. We have not sought improvement by fiat and imperial edict. We have not sought to wipe out institutions with the stroke of a pen. We have said to the various medical schools through the voice of our State Board of Examiners, "Mend your ways or your students get no license." More than that, the American Medical Association established some years ago, a Council on Medical Education whose methods have been moderate but persuasive. Time mends all things. Fiat education is just as bad as fiat money—and as legal. If the methods which the Carnegie Foundation intends to employ in the future may be judged by its recent pronouncement, and the changes which its Board of Trustees have recently demanded, its benefits are little to be desired by self-respecting men or institutions.

A. T. B.

## Original Articles

### THE POST-OPERATIVE CARE OF THE WOUND.\*

By RUSSELL S. FOWLER, M.D.,  
BROOKLYN-NEW YORK.

WHEN your president asked me to give a short talk on the post-operative care of wounds, he set for me a difficult task to accomplish in the time allowed. If a thing is worth doing at all it is worth doing thoroughly, and to properly care for a wound one must be familiar not only with all the underlying principles in wound treatment, but must have had a certain amount of practical experience. He must know not only all the common but also the rarer and more remote complications. The general practitioner in the rush of his daily work and the multiplicity of diseases with which he has to deal has little time for either the theoretical or the practical study of wounds except as they occur in his own practice. For this reason he who has not had hospital experience or worked in a dispensary is not so apt to treat wounds successfully.

The result depends upon the care which is exercised in the after-treatment. Responsibility does not end with the laying-down of the scalpel but continues until healing is complete. The purpose of the after-treatment is to recognize complications early, and so to treat them as to give the patient not only the best chance for recovery but the best final functional result. Not only must the wound itself be treated, but the entire organism must be brought to as nearly a normal condition as possible. Each case must be studied as regards previous habits of life and complicating diseases, particularly as to anemia, syphilis, tuberculosis and diabetes.

Attention to detail insures a successful outcome, while the lack of such attention has lost many a patient and marred many a reputation. If the general practitioner wishes to undertake the after-care of surgical cases he must familiarize himself with the underlying principles of wound treatment. It is my purpose to briefly touch upon a few wound conditions as they occur clinically.

**ASEPTIC WOUNDS.**—The dressing should be inspected frequently and revised if misplaced. Revision should not include inspection of the wound unless the wound has become exposed. Too early inspection favors infection. Local rest of the part must be maintained until healing is affected; general rest only when body movements would interfere with wound healing.

A wound aseptically made usually heals without complications though cultures taken from

wounds will, in 50 per cent. of cases grow, *i. e.*, one-half of such wounds contain infective agents. In the course of five to seven days skin union has occurred. In portions of the body subject to strain, union is not firm before the tenth to the fourteenth day. Age is a factor in the healing of skin wounds as in wounds of other tissue; in elderly persons, skin wounds heal slowly; in young children, very rapidly. The blood and lymphatic supply of the part plays an important rôle; wounds of the face heal in five days, as here the blood and lymphatic supply is very rich; wounds of other parts are slower in healing. The healing process in the deeper structures, *i. e.*, the muscular and fascial layers, is slower than in the skin; from ten to fourteen days being necessary before moderately firm union is accomplished. The extent of the wound is a factor in healing. Small wounds heal more readily than large wounds. Practically we can say that a wound in any part of the body involving the soft parts is healed on the fourteenth day. Such a wound, however, must not be subjected to strain, as the union is still fresh.

The *primary dressing* may be an occlusive or an absorptive one. The common form of occlusive dressing is collodion, either alone or in combination with cotton or gauze extending beyond the wound for a space of two inches in all directions. It does not provide for the absorption of any considerable wound secretion and should only be used in wounds in which hemostasis has been exact and in which serous discharge is not expected. When serous discharge is expected an absorptive dressing is indicated, such as dry sterile plain gauze shaken out and applied loosely over the wound covering the surrounding surface for at least six inches so that the wound is thoroughly protected by a soft and comfortable dressing, retained in place by strips of zinc oxid plaster and a suitable bandage or binder.

*Re-dressing* is done on the fifth day in wounds of the head and neck; on the seventh day in wounds of other parts, at which time the superficial sutures are removed. Without indication a wound expected to heal per primam should not be dressed earlier. The principle of rest to the wound and infrequent dressings should be remembered. Only too often it happens that meddling interference with the dressings on the third or fourth day results in infection. At this, as at all dressings, the wound and the skin in its neighborhood should not be touched by the hand. All manipulations are done with sterile instruments and sponges. No irrigation is used. Just as much care in the preparation of the hands, in the isolation of the wound by sterile towels, and in the sterilization of instruments and gauze, is employed as at the original operation. The wish to give the wound rest and not to interfere with the healing process must not, however, delay the dressing when indicated.

\* Read before the Medical Society of the County of Kings, April 19, 1910.

The bandage and outer layers of the dressing are removed without touching that next the wound. The final layer of dressing is removed with forceps in the direction of the long axis of the wound so as to occasion less pain and not to weaken the union. The wound appears as a thin line marked by the dark, thin blood-clot lying between its lips. If a sub-cuticular suture has been used, one end is caught by thumb-forceps and slight traction is made until it is removed from its bed for one-quarter of an inch where it is cut. The other end of the suture is caught with forceps and removed by traction in the long axis of the wound. At the point of emergence of the suture there will usually exude a single drop of blood; this is sponged away without allowing the fingers to come in contact with that part of the sponge which touches the wound. If the suture does not come away readily and there is danger of breaking the thread by more pronounced traction, it may be left for twenty-four or forty-eight hours longer. The wound and its neighborhood are dusted with zinc oxid powder and a dressing similar to the original dressing applied. If individual sutures or a chain stitch has been used, each stitch, or in the case of the chain stitch, each section of suture, is to be raised, cut and removed. If inspection shows that wound healing is not firm the sutures may be left for a day or two longer, or the wound may be supported by sterile strips of adhesive plaster.

The *second dressing* is done on the tenth to the fourteenth day. In small wounds in parts other than the abdomen the tenth day is the usual time for the removal of through and through sutures, using the same technic as in the removal of individual skin sutures. In small abdominal wounds the sutures may be removed on the tenth day. In more extensive wounds they are removed on the fourteenth day, while in cases of long standing herniæ of the abdominal wall and where tension is great, these sutures may be kept in place until the eighteenth or twenty-first day, unless they are found loosening before that time. A loose suture means that it is no longer serving its purpose in securing apposition of the wound edges and so should be removed. If buried sutures have been employed the wound is inspected on the tenth to the fourteenth day, and a drying powder dusted over the wound and its neighborhood.

*Drainage* is indicated in aseptic wounds in which a dead space has been left which cannot be closed by suitable pressure of the dressings from without or in which large areas have been explored from which a large amount of serous discharge may be expected. The best drainage for such wounds is strips of green silk protective. Such wounds heal practically per primam and their treatment is the same as wound healing per primam, except for the treatment of the drain. The wound is inspected at the end of twenty-four

hours and the amount of serous discharge noted. should the discharge be continuing and the drain be not clogged up, it is only necessary at this dressing to renew the copious gauze dressings which have covered such a wound. A dressing of this kind should be done daily until the serous discharge is reduced to a minimum. Usually, however, the discharge of serum has ceased at the end of twenty-four hours and the drain may be removed and the wound not dressed again until the seventh day. Should it be found that the serous discharge has become somewhat thickened at the end of twenty-four hours without entirely ceasing and, that the albumen has coagulated on the drain and so reduced its draining power, the drain must be renewed and again inspected at the end of the second twenty-four hours.

**ASEPTIC WOUNDS HEALING PER SECUNDAM.**—Wounds in which cavities exist which could not be obliterated by pressure and of such an extent as to require more than small strip drainage. The primary tamponade should cause gentle even pressure upon all parts of the cavity. There is considerable escape of serum, necessitating a change of the outer dressing at the end of twenty-four or forty-eight hours. The tamponade if unclogged, is not changed for three or four days. The packing is removed with forceps and unless there is damming back of secretion a new packing is immediately introduced. Discharges lying upon the surface of the wound are carefully sprayed away with a mild antiseptic solution in an atomizer, and the wound surface dried. Re-dressings should be done every twenty-four to forty-eight hours according to the amount of wound discharge. When the shape and situation of the wound permit the tamponade should be discontinued and strapping or secondary suture done.

**INFECTION OF THE WOUND.**—Mild infection may occur without fever, and with only slight evidence of local disturbance. The patient may complain of slight pain in the wound. In all wounds there is some pain for the first few hours following an operation. This pain subsides at the end of twenty-four hours only to recur if the parts are removed. Pain occurring after the subsidence of the primary wound pain is to be regarded as an evidence of infection. This pain is caused by a swelling of the wound which causes the sutures to press upon the parts. In more marked infection, fever, pain, general depression, loss of appetite, and headache may develop. Of these symptoms, fever and pain are the most common. Even if the fever is absent, however, infection cannot be excluded, for the pus focus may be well walled off. This is the case in infection having its origin in a ligature acting as a foreign body. In such cases fever is delayed until the focus has enlarged considerably, while the recognition of such a condition may not be possible until it has approached



the surface. The presence of both the symptoms of pain and fever makes the diagnosis of infection certain. The occurrence of one makes the diagnosis probable. A sudden rise of temperature marks the development or the extension of infection. So-called aseptic fever must not be mistaken for wound infection. *Aseptic fever* occurs during the first twenty-four hours following the operation; the rise of temperature is gradual, rarely going above 102 degrees F. It reaches its maximum twenty-four hours following the operation and quickly subsides, rarely persisting beyond forty-eight hours. It need occasion no anxiety. The character of the operation will enter somewhat into the amount of aseptic or reactive fever. In cases requiring extensive dissection, or in which the tissues have been exposed for a considerable length of time, aseptic fever is more apt to occur. Of late years I have rarely observed its occurrence. Another cause for fever is *intestinal fermentation*. For this reason the bowels should be moved daily. In every case of fever following an operation the condition of the bowels should be inquired into, and if they have not moved freely, a laxative should be given except in operations upon the gastro-intestinal tract, in which case an enema is indicated. If the fever is due to constipation or fermentation, a thorough evacuation of the bowels will cause the temperature to subside. Continued fever, with acceleration of the pulse, and interference with the general condition of the patient always calls for an inspection of the wound. The symptoms will vary with the virulence of the infection and the resistance of the tissue. If there is free drainage and an abundant absorptive dressing as is the case in wounds healing per secundam, there will be but slight absorption, and in spite of the occurrence of infection the general symptoms will not be marked. In wounds completely sutured even the occurrence of slight infection may cause general symptoms. Upon the institution of free drainage the symptoms usually subside though the simplest infection may result fatally.

Clinically, infection is designated as early or late. *Early infection* occurs from the third to the seventh day following the operation and is usually superficial. Upon changing the dressing a slight redness of the edges of the incision or in the neighborhood of the stitch holes is seen. As a rule, this readily subsides following the removal of the superficial sutures, or if this is not desirable a compress wet with mild alcohol bichlorid solution may be applied to the wound. This is changed daily, kept moist and its evaporating qualities not interfered with. In other infections, also of a mild nature, but slightly more marked than the preceding, upon removal of the dressing there is found in addition to the redness of the wound edges a drop or two of pus exuding either from the incision or from

the suture holes, though for the most part the wound is healed. Both these mild forms of infection are due to bacteria in the depths of the skin itself, notably the staphylococcus epidermidis albus. These bacteria are lodged so deeply in the skin that it is practically impossible to eliminate them. Fortunately, not only are they of little infective strength, but the skin itself is possessed of a high degree of resisting power. Removal of the skin suture at the site of infection, thus providing free drainage, and the application of alcohol bichlorid solution will usually suffice to allay the inflammation. Should there be any tendency of the infection to spread, the entire skin wound should be opened. Even when all the suture holes and the entire skin wound are infected, the deeper portions may remain free from infection and healing in that part of the wound proceed uneventfully. In such cases the superficial parts are red and swollen and pus exudes. The sutures are seen imbedded in the swollen soft parts, the skin edges do not heal but are glued together by a sticky exudate, a feeling of tension in the wound will be complained of, and there will be slight evening rise of temperature. Healing may occur with only very slight separation of the wound if the sutures are removed as soon as infection is discovered. The wound should be gently sprayed, gently dried and lightly packed. Too vigorous cleansing is undesirable. Small adhesive plaster strips may be used to reinforce the wound edges, the support of which is weakened by removal of the sutures. If pain and fever are at all marked the entire skin wound must be opened up and free drainage provided for. In other cases it is only necessary to separate the wound edges at the points where pus exudes, spray away the pus and by small pledgets of gauze insure drainage. Rapid healing may be secured in such cases by careful and frequent dressings.

Still another variety of mild infection is shown in cases in which there is oozing of blood under the skin. This predisposes to infection. The prevention is thorough hemostasis. In the early stages blood may escape from between the wound edges; later skin healing becomes complete and the swelling develops as a hematoma under the skin. Such effusion of blood becomes in part absorbed and in part organized. Should infection occur the clot breaks down and the usual symptoms of infection follow. In infections of this character the wound should be opened sufficiently to thoroughly express and wash out all of the infected clot. The resulting cavity is then lightly packed. As a rule, rapid healing results.

In aseptic wounds in which drainage has been used infection is shown by an increase in the amount of discharge and a change in its character from serum to sero-pus and finally to pus.

*Late Infection.*—Late infection occurs during the second week. It is usually a deep infection.

Starting in the neighborhood of the aponeurotic structures of the wound, the clinical course of the wound thus infected is as follows: Healing proceeds apparently uneventfully until some time between the seventh and fourteenth day, when a sudden rise of temperature shows that infection has taken place. It may be that at the removal of the skin suture on the seventh day absolutely no evidence of infection was apparent. Some days later, when the temperature rises and the wound is again inspected to see if the cause for the heightened temperature resides there, careful inspection will show a swelling of the wound which originates in the deeper parts of the wound. Except for this swelling the superficial parts will appear normal. Such an infection may occur at a much later date, even four to six weeks after wound healing has apparently become complete. For this reason it is advisable to instruct patients to report immediately upon the occurrence of any strange sensations or appearance of swelling. This very late deep infection is caused either by an infected piece of suture or ligature material or by a piece of suture or ligature material which fails to become absorbed and which produces a foreign body suppuration. Such infections may also be due to deep hematomas, the result of inefficient hemostasis.

The treatment consists in passing a narrow-bladed pair of anatomical forceps, closed, to the center of the swelling and withdrawing them while separating the blades. This allows of the escape of the infection through the tract made by the forceps. The opening should be enlarged sufficiently to permit of free drainage, a small rubber tube is introduced for the first few days, and when the discharge diminishes this is replaced by gauze drainage or strips of green silk protective. If the superficial parts are firmly healed the infection must be opened with a scalpel.

The treatment of such an infection should be initiated upon its discovery. It is futile to wait, in the vain hope that the swelling will subside. If not opened early the infection spreads and results in a subcutaneous, muscular or tendinous phlegmon according to the structure involved.

*Stitch Abscess.*—Stitch abscesses are either superficial or deep. The superficial are caused by the staphylococcus epidermidis albus; the deep may be caused by this germ being carried to the deeper portions of the wound by the passage of the needle, but are quite apt to be deep infections endeavoring to find an exit along the suture. One suture only may be involved or all the sutures may be involved. Should the wound itself partake in the suppurative process, this must be opened up, offending sutures removed, and each stitch abscess opened up into the wound, the bridge of skin between the stitch abscess and the wound proper being incised, thus connecting the two. Necrotic and infected

tissues should be curetted away, the wound cleansed with the peroxid of hydrogen spray, and lightly packed with gauze wrung out of an antiseptic evaporating solution. Should the wound itself not be infected, each stitch abscess is to be treated as an independent infection, the stitch removed, the abscess opened, curetted and cleansed. The evaporating dressing should be kept moist. Here as in all infections the general rule must be followed as closely as the conservation of important structures will allow; the surface opening must be at least of the same size as the depth of the wound.

*Retention of Secretions.*—If only a portion of the secretion flows away, the remainder will stagnate in the wound and fever will result. The local signs of inflammation will be slight, and if the stagnation is in the deeper portion of the wound these symptoms may be absent. There will be but slight pain on account of the absence of tension. If the secretions infiltrate the tissues, or if there is no exit for them, the pain will be marked and the general disturbance will be greater. The pain varies from the pain of mild tension to a constant, agonizing, throbbing pain which is increased by pressure or by movement. Fever may occur in an open superficial wound, even if there is no marked infection, in case the secretions are not absorbed by the dressing. In such cases frequent dressings are indicated. Upon changing the dressing the thick secretions will be found bathing the wound surface. It may be necessary to change the dressings in such a case two or even three times a day. Moist evaporating absorbent antiseptic dressings will decrease the infection. The free evaporation of the secretions must not be interfered with.

*Retention of Secretions with Tension.*—Here we have all the symptoms of abscess or phlegmon. The suture which overlies the point of greatest tension must be removed and an outlet provided for the escape of the retained secretions. If the removal of several sutures does not provide adequate drainage, and the general symptoms continue, more sutures are to be removed at a subsequent dressing. Free escape of secretions is essential. This is aided, as in the case of stagnation of secretions, by employing an evaporating antiseptic solution to moisten the gauze, thus increasing the rapidity of the evaporation of the discharge. There is the same necessity for frequent change of dressing. Such dressings, however, should not be employed until adequate drainage has been provided. As soon as the discharge lessens dry gauze dressings are to be employed. Should the local condition not subside under this treatment, the entire wound must be opened up and loosely packed with gauze. It may be necessary to make counter openings. In wounds involving cavities, even the opening of the entire wound may not provide adequate drainage, as in the

case of tuberculous bone disease or empyema thoracis, in which event a second operation may be necessary.

*Phlegmon.*—Spreading Infection.—Whenever infection occurs there is always a possibility of its spreading. If the wound secretions have free exit the tendency to spread is slight. Even in such a case, however, by reason of the virulence of the infection it may spread to adjacent tissues. This also occurs even with germs of low infective power if drainage is interfered with. Phlegmons differ clinically according to the location of the infection.

The infection spreads in the direction of the least resistance, as, for instance, in moderately loose connective tissue, or along connective tissue and intermuscular planes, or along tendon-sheaths. Where the anatomic peculiarities of the part present a barrier to the progress of the infection along the lines by which it has started the infection follows the line of least resistance until another plane of tissue is found. Obstructing bands of tissue have their blood-supply interfered with by pressure of the inflammatory products and finally undergo necrosis. This is particularly true of fascia and tendon-sheaths. In *subcutaneous phlegmon* the skin is finally attacked, becomes reddened, stretched out, and perforation occurs. Where the phlegmon is restricted to the subcutaneous tissues the elasticity of the skin prevents any great degree of tension until nature has set a firm barrier of inflammatory tissue around the original focus of infection, thus preventing its spread. Usually the phlegmon becomes circumscribed early and readily subsides following incision.

*Intermuscular Phlegmon.*—This may follow rupture of the urethra, infected compound fractures, or infected wounds of the neck. The infection follows the course of the deeper fascial planes and being beneath them is not readily diagnosed. This is of much more serious import than the subcutaneous phlegmon, for the reason that the infection readily travels along the fascial planes and is only limited by the boundaries of these planes. The general symptoms are much more severe, the fever is higher. Repeated chills, slight in character, may precede the fever. The rapid pulse and apathetic appearance of the patient show the occurrence of general infection. The character of the pain in the affected area is dull, tense, and not exactly located by the patient. The swelling is diffuse, most prominent at the center of the infection. An entire extremity may be involved. In the case of the neck, the infection may spread to the opposite side. The overlying skin becomes a livid bluish red. This is due to pressure upon the deep vessels. As the inflammation approaches the skin redness develops, the overlying tissues are doughy to the feel, the deeper tissues give a sense of brawny infiltration. Fluctuation is first felt in the center of the infection. The center of the infiltrated

mass becomes softened, and upon palpation it feels almost as if a hole had formed in the center of the infiltrated tissue. The function of the surrounding muscles is early lost. The part is kept in the least painful position and as a result contractures occur. Only rarely does the phlegmon approach the surface and rupture spontaneously. If early incisions are not made general infection promptly occurs. Incisions must be made early to prevent widespread functional impairment of the part.

*Tendinous Phlegmon.*—This occurs most frequently in the forearm and hand. It may follow insufficient incision of felon. The phlegmon is preceded by fever and throbbing pain. Pain is sufficiently intense to cause sleeplessness. The swelling is exquisitely tender. On account of the density of the palmar fascia swelling may not be so prominent in the palm, but through the pressure of the secretions under tension will cause swelling to appear on the back of the hand. Unless relieved by incision the tendency is to spread beneath the carpal ligaments to the tendon-sheaths of the forearm. When the tendon-sheaths of the forearm are attacked the whole forearm becomes swollen. Redness appears over the infected tendon-sheaths. These rupture and an intermuscular phlegmon is added. Such cases should be incised at the earliest possible moment, otherwise the tendon itself will surely be destroyed. Incisions must be free. In all three varieties of phlegmon early and free incision is the only rational treatment. Small incisions are of no avail. The treatment by parenchymatous injections of carbolic acid, the application of ice, and the inunction of ointments, is only mentioned to be condemned.

In the treatment of *diffuse cellular infiltration*, as, for instance, the cellular infiltration remaining after free evacuation of the primary focus of infection in the case of a palmar abscess, Bier's treatment by hyperemia is indicated. This may be accomplished by the application of a broad band of elastic in the course of the forearm, or the hand may be placed in the Bier suction apparatus. This treatment is of decided benefit in such diffuse infiltrations. It is only to be used, however, after the primary focus of infection has been freely incised.

*Infection in Loose Cellular Tissues.*—In loose cellular tissues infection spreads rapidly, as is the case in infection following operations involving the scrotum. The infection is usually of a mild character and rapidly subsides upon the provision of sufficient drainage. The lower limit of the infection should be incised and a rubber tube introduced to drain the infected cellular tissue. The position of the infected part should always be such as to favor drainage by gravity; for this reason counter-openings should be made at a point which normally is at the lower part of the infected tissue when the patient is lying down. Infection in loose cellular tissue underly-

ing mucous membrane is treated by multiple punctures and scarifications with the application of evaporating lotions.

Time does not allow me to more than mention the complications of wound infection; these are lymphangitis, lymphadenitis, septicemia, pyemia, erysipelas, hospital gangrene, malignant edema, infectious emphysema, bacillus pyocyaneus infection and tetanus, any of which may complicate even an aseptically made wound.

*Aseptic Wounds in Infected Tissues.*—A wound made in infected tissues is necessarily infected, and this infection must be disposed of before healing can occur.

The principles upon which the treatment of such a wound rests are adequate drainage and the hastening of the separation of sloughing tissues. Such wounds are exemplified by furuncle, paronychia and carbuncle. The wound is lightly packed with moist gauze and kept open. Incisions must be adequate. Moisture hastens the separation of sloughs. For this purpose alcohol bichlorid is useful. The evaporating qualities of the gauze should not be interfered with. The dressings should be changed sufficiently often to prevent any stagnation of secretion. The margins of the wound should never be squeezed in the endeavor to evacuate pus. This results in forcing infection into adjacent tissues. Sloughs should not be forcibly removed. Those necrotic masses which come away easily may be removed. Irrigating with saline solution will wash away loosened necrotic masses. Peroxid of hydrogen sprayed on the wound through an atomizer will help in cleansing the wound. These wounds should be dressed at least once daily until the slough has separated. The parts should be kept absolutely at rest, and in such a position as to provide for the best circulation. Sprinkling naphthalin crystals over the wound will aid in separating the slough. After the wound has become clean dressings may be done every second day. Such wounds are liable to be complicated by lymphangitis and lymphadenitis.

*Thermocautery Wounds.*—If the operation was done with a thermocautery, as in the treatment of lupus, gangrene, anthrax, and some forms of nevi, the resulting wound should be dressed for the first few times with boracic acid ointment. The eschar resulting from the use of the cautery separates in from eight to ten days, leaving an underlying healthy granulating surface which may be skin grafted, or the ointment dressings may be continued if the area is small. Scarring following the use of the thermocautery is remarkably slight where the entire thickness of the skin has been destroyed.

*Retention of Secretion in the Wound through Blockage of the Drain.*—There is slight fever and general and local discomfort. These symptoms may directly follow the operation, or supervene after several days of an aseptic course. Upon removal of the outer dressing only a

slight amount of discharge is found upon it. The margins of the wound are slightly reddened and there is some pain. The removal of the drainage tube or gauze drain is followed by a gush of pus. The wound should be thoroughly cleansed with saline irrigation, and a fresh drainage strip or tube introduced. Following this the discomfort and symptoms of general infection disappear and the parts become normal in appearance. In any case in which drainage has been used the occurrence of fever should be looked upon as an indication for the removal of the drain to ascertain whether it has become blocked. The symptoms may continue after the drain has been removed, the wound cleansed and a new drain introduced. This indicates a focus of infection which is not reached by the drainage. The drainage tract must be explored and the focus of infection found and efficiently drained. If this cannot be done through the original drainage opening, a counter-opening must be provided.

*Disturbances of Granulation.*—The granulating process may proceed too slowly (sluggish granulation), too rapidly (exuberant granulation), or the surface of the wound may be covered with a tough, elastic membrane (pyogenic membrane). In the wound in which the granulating process is sluggish, the individual granulations will be small and rounded, with spaces between them. The granulations do not grow freely enough; they lose their red color and become grayish and shrunken. These sluggish granulations are quite apt to develop in old people or in patients with lowered vitality. The wound surfaces will either be quite dry or dotted here and there with tenacious secretion. The treatment consists in exciting granulation by sprinkling the surface with naphthalin crystals or with balsam of Peru. In a very sluggish wound the naphthalin crystals are first used with balsam of Peru; later, when granulations become more profuse, the balsam alone may be used, and finally, when an even surface results, plain gauze. Powders only serve to delay the healing process, unless they are of a nature to mix intimately with wound secretions. Curetting the wound serves to stimulate granulation. Criss-cross incisions may be made through the floor of the wound one-eighth of an inch apart and deep enough to reach healthy tissue beneath. Through these incisions healthy granulations spring.

The wound, the site of exuberant granulations, presents a soft, mushy appearance and bleeds easily. The granulations fill the wound. There is profuse thin discharge. The cause may be found to reside in a foreign body, such as a small piece of bone or a ligature, or may be due to the shifting of the dressing.

The treatment is to remove the granulations with scissors, to scrape the wound with a curette, and to paint the wound with either 50

per cent. nitrate of silver or equal parts of carbolic acid and iodine. If the wound is covered by a tough membrane, this should be dissected away and the wound painted with a 10 per cent. solution of chlorid of zinc. Following this, the wound is stimulated daily with naphthalin crystals and balsam of Peru. It may be necessary to incise the floor of the wound with criss-cross incisions and to apply moist dressings to favor healthy granulation. This condition occurs most frequently in neglected wounds. Supporting the tissues in the neighborhood of the wound by adhesive plaster strapping improves the blood supply.

The study of wounds is a fascinating one that appeals to most of us. Time not allowing me to touch even briefly upon many of the complications of healing I will only name them: sinus; hemorrhage, primary, secondary, due to loosening of a ligature, to infection or erosion, to vascular paresis, and to blood clot; wound disturbances the result of antiseptics; wound disturbances the result of pressure; diseases of the scar, keloid, pseudo-keloid, malignant degeneration and latent infection in scar tissue; the rarer wound infections. These must all be studied if one desires to become proficient.

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### PRESIDENT'S ADDRESS.\*

By DAYTON L. KATHAN, M.D.,  
SCHENECTADY, N. Y.

#### FELLOW COLLEAGUES:

As the officers of the Fourth District Branch are elected by the delegates and not by the members themselves, this is my first opportunity for expressing my appreciation of the signal honor of being chosen your president.

It occurred to me to express my thanks in deeds rather than in words, by preparing a scientific program fitting the occasion, by extending to you the warmest welcome to our city, and conducting this meeting in such a manner as to meet your approval and appreciation.

During the past year the master minds of our profession have entered upon the most important campaign in the interest of the people ever waged in the history of the United States. Much enthusiasm has been aroused, much influence has been brought to bear on the authorities at Washington, praying for the establishment of a Department of Public Health. Senator Owen introduced such a bill at the last Congress, stating that sanitary science had demonstrated its efficiency, and the people are in need of its benefits.

The great army of quacks and charlatans with the patent medicine vendors who have thrived so long on the innocent and unsuspecting public and whose commercial ambition might be jeopardized

by this bill have succeeded in holding it in abeyance for the time being. Another Congress will see its advantages and give us a Department of Public Health which we so justly deserve.

It is of the utmost importance that a thoroughly scientific investigation of the causes of chronic diseases and degenerative disorders should be made by a body of men having Federal authority and prestige. A Federal Department of Health could accomplish this work by a large body of experts provided with all the appliances and resources afforded by modern science.

Social diseases, occupation diseases, their prophylaxis and cure, insanity and its causes, cancer and its prevention are a few of the questions to be solved by a body of Federal experts.

A campaign of education should be instituted among the people, showing them the advantages of such a department and they will demand of their representatives that such a department be created.

"Evolution is the progress of human events."

It has been suggested that every County Medical Society should devote one entire session during the year to the discussion of important public questions; that the public be invited to attend and listen to papers on hygiene and sanitation and other important problems.

The fight against ignorance and superstition is the hardest battle the cause of progress has to wage. A small part of our population are at heart anti-vivisectionists; due in part to the natural horror of all good people to all forms of cruelty to our dumb animals; in part to the pernicious activity of unscrupulous agitators ignorant of the true spirit of scientific research, ignorant of the practical benefits to be derived from experiments on animals, in short refusing to believe that any disease has become exterminated or even controlled by deductions drawn from experiments on living animals. This unholy doctrine spread broadcast among the people unchallenged by the medical profession, the recognized guardians of the people, creates a spirit of enmity against vivisection.

A vast amount of false information is being diffused among the people. Scientific truth should be thoroughly taught to counteract this evil.

A concerted and persistent campaign of medical education will have great weight in moulding public opinion. Show the people the great benefit they are receiving and they will no longer listen to evil-minded agitators.

The great majority of people are still ignorant of the accomplishments of medical research during the past decade. What an education, what an inspiration to listen to a detailed report and results of medical investigation and surgical accomplishments.

The construction of the Panama Canal was a problem that France with all her wealth of men and money could not solve.

\* Read at the annual meeting of the Fourth District Branch, at Schenectady, September 27, 1910.

What proved such a prodigious undertaking and disappointment to the French people was for the most part a problem of sanitation which has been solved by our Country in a most successful manner.

The most impossible and pestilential zone in the world has been made as free from disease as the French Riviera.

What has become of yellow fever and malaria—the twin scourges of the tropics? They have taken their places along with diphtheria, hydrophobia and tetanus, the mention of whose names once filled us with terror.

I do not intend to catalogue all of the brilliant achievements of medicine and surgery.

The real purpose of this paper is the discussion of one of the most serious subjects of pediatrics—intussusception in infants and children.

This is one of the most fatal and appalling accidents of childhood. My interest in this subject has been especially aroused by a series of cases coming under my observation during the past year or two.

Intussusception should appeal with special force to the general practitioner, as he is the first to prescribe for these little sufferers and hence the responsibility of an early diagnosis rests heavily upon him.

An early diagnosis with prompt operative interference means recovery; a tardy diagnosis with a waiting policy means death.

The etiology of this affection is somewhat obscure. We often find it associated with diarrhoeas and intestinal disturbances. In such conditions unequal peristalsis is quite likely to exist, there being more or less paresis of one segment of the bowel, while increased activity may be found in another. Hence, tumors, diverticula, ulcers or anything that causes a local irritation or localized peristalsis is a sufficient excuse for one segment to push its way into and be swallowed up by its less active neighbor. Chronic constipation with its resultant straining at stool may be a sufficient cause. It has been found complicating typhoid fever. Male children are more likely to suffer from this unfortunate accident than female.

There are several different varieties of intussusception, but altogether the most common one found in children has its beginning at the ileo-cæcal valve. The cæcum with its appendix and ileum is swallowed up by the colon. The ileum does not often pass through the cæcum but with the cæcum is invaginated into the colon. All of my own cases have been of this variety except one—a lad of eight years having the colic variety. In this case the ascending and transverse colon were swallowed up by the descending colon beginning at the splenic flexure.

The pathological changes in intussusception are rapid and fatal, the invaginated bowel carries with it its mesentery, swelling and strangulation rapidly follow, cutting off not only the fecal

current but the blood supply as well. Unless promptly released, gangrene and death of the incarcerated bowel soon occur.

The diagnosis of intussusception is not difficult. The greatest obstacle to a correct diagnosis is a careless and inefficient physical examination.

When a child has intestinal obstruction, it is likely to be due to intussusception. Of course, this rule does not apply to adults.

There may be a history of intestinal disturbance or sudden cramp-like, colicky pains may usher in this affection without premonitory symptoms. Nausea and vomiting occur simultaneously with the pain or immediately after. The vomiting may be continuous but is more likely to be a regurgitation of water or milk or anything given by mouth.

There is a frequent desire to defecate with straining and tenesmus and the mother is surprised to see only blood or bloody mucus or bloody serum.

Lest we mistake this condition of bloody stools for enteritis or colitis, it is well to remember that blood in the stools in children is a late manifestation of diarrhoeal disturbances.

The clothing should be removed and a careful examination of the abdomen made. The abdomen will be found relaxed with no distention. This continued flaccid condition of the abdomen without distention is characteristic of intussusception.

A tumor may or may not be found. As a rule, however, an easily movable tumor can be felt well above the umbilicus or frequently hiding behind the right costal arch.

A normal or subnormal temperature will be present—an elevation of temperature is not an early symptom, but appears when complications have developed. Prostration is more marked than can be accounted for by the ordinary colicky pains of indigestion so frequently present with young children.

An early diagnosis followed by prompt operative interference, ordinary skill and knowledge being observed, will result in recovery, while a late diagnosis will render null and void the highest technical skill and surgical judgment.

The treatment of intussusception is operative. It is a surgical condition and calls for prompt surgical interference.

Many physicians advocate and practice the non-operative treatment, opium, inflating the bowel by air, rectal enemas of oil with the Trendelenburg position and massage of the abdomen under anæsthesia. I am sure that many children have been sacrificed by this delay if not by the methods employed. It is certain that a damaged bowel can be ruptured by the force of air inflation or rectal enemas with the Trendelenburg position.

We sometimes find it difficult to reduce an intussusception with the tumor in our hands

and under our immediate inspection. We have little faith then in our efforts at reduction by taxis and massage of the abdomen, conscious that we are manipulating an intestine of questionable integrity.

We should waste no time on these feeble and doubtful attempts for every hour's delay increases our mortality.

A few years ago the same methods were employed to reduce strangulated hernia. At the present time all forms of manipulation are considered unsurgical.

The conditions are similar. In each instance damage is done by the blind manipulation and the delay increases the mortality. Ether anæsthesia should be employed. Chloroform was formerly used with young children as it was thought to be less likely to cause post-operative vomiting, considered the most important factor in recurring intussusception.

As nearly all cases of intussusception in infants and children are of the ileo-cæcal variety, a right rectus incision is the one of choice.

The tumor should be lifted out of the abdomen, surrounded with hot towels and manipulated with great care.

Traction as a means or reduction is of no avail and should not be employed, as it is likely to lacerate the intestinal peritoneum, the vitality of which is already impaired. The reduction is best accomplished by milking process, compressing the distal end of the tumor toward its place of entrance. The last knot or knuckle is sometimes difficult to unfold but it must not be overlooked as it invites a speedy recurrence of the intussusception.

If the appendix is a part of the intussusceptum it should be removed. After the incarcerated bowel has been released, a careful inspection should be made to determine its viability.

If reduction of the intussusception is impossible or if the incarcerated gut is gangrenous, excision is necessary and I believe it is best to bring the two ends out in the incision to be closed later. This requires little time, and time is life-saving in these grave conditions of infants and children, and at the same time the system is rapidly relieved of intestinal toxins.

Excision with an immediate anastomosis as a primary operation in the very young I believe to be unwise as it has so far been followed practically by a mortality of 100 per cent.

There are certain grave cases where gangrene does not exist but in which a cecostomy as suggested by Dr. Charles A. L. Reid, of Cincinnati, appeals to me as a proper procedure. A cæcal tube is inserted and attached to a hot water reservoir at a temperature of 105 F. The colon is rapidly filled and acts as a hot water bottle on the inside of the abdomen. Intestinal distention and toxemia are relieved and a continuous infusion of normal salt solution through the cæcal tube by the drop method is certainly beneficial.

After reduction the abdomen is closed in the usual manner, a firm abdominal bandage being applied.

The after treatment is very important. Opium in some form to control peristalsis is most essential. All foods and liquids should be prohibited by mouth till such time as the improved condition of the patient indicates their employment.

In closing I wish to impress upon the general practitioner the importance of an early diagnosis and the necessity of an immediate operation.

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### THE MINERAL WATERS OF SARATOGA SPRINGS IN THE ROLE OF THERAPEUTIC AGENTS.\*

By GEORGE HAUGHTON FISH, M.D.,  
SARATOGA SPRINGS, N. Y.

THE therapeutic value of the mineral waters of Saratoga Springs has been known for centuries, it being crudely understood and made use of by the Indians before even the existence of the springs were known to the white men. However, the historical interest and theories of origin of the springs, interesting as they are, cannot be reviewed in this paper on account of time.

For medical consideration the waters of Saratoga may be classified under five heads: (1) alkaline, (2) saline cathartic, (3) chalybeate, (4) sulfurous, (5) alterative; and, at Saratoga, springs possessing all these different characteristics exist within a radius of three miles. The fact that Saratoga possesses waters of such varied character being one of its distinct advantages over other watering places.

The alkaline waters, such as the Vichy, Adirondack, Quevic, High Rock and Star are particularly valuable for patients who suffer from so called uric acid diathesis, hyperacidity of the stomach, rheumatic and gouty conditions. The unvarying alkalinity of the blood after ingestion of these waters is the most striking proof of the diffusive power of the alkaline salts which they contain, and which is very great; their absorption taking place soon after ingestion. They stimulate the alkaline secretions of the liver, pancreas and intestinal glands, and taken on an empty stomach stimulate the flow of gastric juice but diminish its acidity. The alkaline waters are valuable in catarrhal conditions because they increase the flow of alkaline mucus.

While the Geyser water is often classed as a saline cathartic, I have obtained most gratifying results by its employment in chronic rheumatism and gout, and have ascribed much of its

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\* Paper read at annual meeting of the Fourth District Branch, Medical Society of the State of New York, Schenectady, September 27, 1910.

potency in the relief of these conditions to the lithia which it contains, and the quality of which compared to that contained in the lithia waters on the market is relatively large. As a vehicle for the administration of certain drugs, particularly the iodides, these waters excel anything I have ever used. Extremely large doses of the iodides may be administered dissolved in one of these waters with no gastric disturbance following.

The saline cathartic waters which are best represented by the Hathorn, Carlsbad, Congress, Geysers and Excelsior are of great value not only as purgatives but in conditions of torpid liver and imperfect elimination, and, properly administered, as gentle laxatives. They stimulate the intestinal and biliary secretions and excite peristalsis. One great advantage obtained by the judicious use of these waters instead of the various laxatives and cathartics, is the absence of any irritating effect upon the gastric or intestinal mucousa, their cathartic action being largely due to the carbonate or bicarbonate of magnesia which they contain in combination with the various chlorides. The action of these salts is comparatively mild and much less violent than that of the sulfates upon which the European Carlsbad, Hunyadi and Friedrichshall depend. Thus the Saratoga waters hold an advantage over most of the European springs, being non irritative and producing a more fecal evacuation, not so watery, without the danger, in long continued use, of producing any structural change in the intestinal mucousa, which the foreign waters are apt to do. These waters also have a diuretic action and for this purpose are best prescribed in small doses frequently repeated. The diuretic and cathartic action are not by any means the only effects of these waters, nor, many times, are they the most important. Their somewhat insidious action obtained after protracted use, such as increasing or diminishing of glandular and cell activity, their effects in promoting metabolism and in the elimination of effete material, their tonic effect on glandular secretions and secreting membranes, which cannot be observed immediately, yet which surely take place, is one of the greatest advantages in their employment as therapeutic agents.

The chalybeate waters of which, perhaps, the Columbian, Washington and Putnam springs are the most useful, are, without doubt, of very great value in anæmia and chlorosis, in fact, wherever an iron tonic is indicated. The small amount of iron contained in these waters has made many skeptical as to their therapeutic value, but, I assure you, gentlemen, were you to trouble to observe a few test cases, your skepticism would vanish. I trust I may be pardoned for again quoting the experience of my friend, the late Dr. Thomas Burchard, who, a few years since, selected five cases for observation in

regard to any benefits which might accrue from the use of the natural iron waters. Two patients were selected, as representing perfect health; the other three, one male and two female, suffering from severe anæmia. One glass of the mineral water was prescribed four times daily, the Columbian water being selected for the test. The two patients representing health were obliged to discontinue the use of the water after one week's use on account of severe headaches it produced. In one case accompanied by epistaxis. In the three patients suffering from anæmia, sphygmographic tracings showed increase of the power and rhythm of the heart beats and microscopic examination in each case showed an increase in the number of red corpuscles and favorable change in their character.

The mere presence of iron in a natural water is no evidence of its medicinal usefulness, but in the ferruginous waters of Saratoga Springs, the iron exists in such chemical combination and together with the natural carbonic acid gas as to be of much greater value therapeutically than many times the amount of iron administered in other form. Although the Saratoga iron waters contain but one-half grain iron to the pint, usually as a carbonate or bicarbonate, their effect in anæmic and chlorotic conditions is more marked than that of extensive iron medication in other forms, and many cases which have resisted other tonic iron treatment will respond promptly to the judicious use of these waters.

There are several so-called sulphur springs, located at Saratoga, the waters of which are impregnated with sulphuretted hydrogen. Their value particularly for bathing in certain diseases has been long established. Taken internally, they produce some alterative effects and are so used in skin diseases and so-called scrofulous conditions.

The Red Spring, Lincoln and Patterson are, I believe, the best types of alterative waters. Although some would classify the Patterson as a saline, I have been accustomed to prescribe it more as an alterative and less for its cathartic action. It not only stimulates the glandular secretions of the liver and intestines, but is a diuretic, aids in dissolving renal and hepatic calculi. Both of these waters mentioned are useful in eczema, rheumatism, rachitis in children, and many wasting diseases, where glandular secretions are sluggish and an alterative effect is desired.

Many cases of diabetes have been apparently cured by a systematic course of these alterative waters and although the fact of a cure may be doubted by some, no observer could question the marked benefit which diabetics obtain in relief of symptoms and diminution of sugar excreted; the quantity of urine diminishes, the thirst lessens, nutritious improve, and the patient



acknowledges a feeling of well being which he has not experienced for a long time.

The great value of all the mineral waters of Saratoga Springs lies, not so much in the quantity of their different ingredients, as it does in the particular combination in which Nature presents them to us. The presence also of natural carbonic acid gas in such large quantities adds much to their potency. This gas being particularly effective in certain gastric conditions, acting as a stimulant to an atonic gastric mucous membrane, and, as an anæsthetic to an irritable one. It also exerts some stimulating effect after absorption into the blood stream, and is present in much greater quantity in the Saratoga waters than in those of the Continent.

It should be borne in mind by the layman, as well as by the physician, that these mineral waters are medicinal agents capable of producing ill results as well as beneficial if injudiciously used, and that they should only be used upon the advice of a physician. The practice so often followed by many visiting Saratoga Springs, and indulging freely in the waters indiscriminately and without medical advice should be condemned, as patients are frequently made ill simply by this reckless use of the mineral waters. In making an arbitrary classification of the waters, it is done with a full realization that no hard and fast line may be drawn, as many of the alkaline waters are also saline, most of the saline alterative, as are also the sulphur waters. Patients suffering from certain morbid conditions such as extensive arterial degeneration, plethora and hæmophilia should avoid the iron waters, while those afflicted with acute inflammatory conditions of the stomach or intestines, pyloric obstruction, and, generally speaking, cardiac diseases, should not employ the saline mineral waters.

As is well known, the benefits to be derived from the use of any natural mineral water are greatly enhanced by the patient sojourning near the location of the spring for a few weeks at least, and taking what is termed "the cure." The complete change of surroundings, absence of the cares of business and domestic life, the beneficial effect, in the case of Saratoga, of the bracing atmosphere and unexcelled climate, the use of a judicious dietary combined with proper rest, exercise, recreation and bathing, all combined with the drinking of the waters as carefully prescribed by a physician, all these are factors which aid in ridding a patient of his disease.

Several of the springs of Saratoga have bath houses on their grounds where patients may enjoy the benefit of a bath in natural mineral water, highly impregnated with carbonic acid gas. The therapeutic value of these baths, the stimulating and beneficial effect of the external application of carbonic acid gas, in this way, is recognized and employed to a much greater extent abroad than here; but, with the advantages and facilities to be obtained in our own country,

there is no need for so great an annual pilgrimage to the foreign spas, were Saratoga Springs only more generally appreciated by the practitioner of medicine as well as the layman. One of the bath houses in Saratoga Springs is ranked as the equal of any in this country, and here are facilities not only for mineral baths, but also Turkish, Russian and Swedish baths, as well as competent scientific massage treatment and the application of electro-therapy.

The benefits derived by that class of patients who have for months or years suffered from chronic rheumatism, whether muscular or articular, through a course of these natural mineral baths is many times astonishing, while they also exert a tonic influence. For this purpose the Putnam, Magnetic and Red Springs are the ones employed, and they deserve a much wider reputation than they enjoy. "A prophet is not without honor except in his own country," and I have seen many Saratogians who have in vain made pilgrimages to other springs and health resorts in the endeavor to be free from their rheumatism, finally return to their homes and be persuaded to take a course of mineral baths with great benefit.

#### REPORT OF A CASE OF DUODENAL PERFORATION FOLLOWED BY SUBDIAPHRAGMATIC ABSCESS AND RUPTURE INTO THE LUNG—OPERATION: RECOVERY.\*

By JOSEPH J. KANE, M.D.,  
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THE diagnosis of duodenal ulcer is by no means as rare and as difficult as it was ten years ago. Many thanks to Moynihan Mayo Robson, the Mayos and their able assistant, whom we have the pleasure of having with us to-day and to John B. Deaver. Frequently it is impossible to diagnose the condition without a good history.

In the case which I present I was unable to obtain a satisfactory history. He was moderately alcoholic; had pleurisy five years previously, and had indigestion with cramps for a period of eight years. There existed an old appendical involvement and this made the diagnosis misleading.

The diagnosis of its complication subdiaphragmatic abscess was confusing because of the old thickened pleura; and a bronchitis which he developed a few days before the onset of the perforation.

Edward E., aged 39, was taken suddenly with cramps across his abdomen while at his work as a brakeman. The cramps were so severe as to cause him to loose his grip on the handle of the car and fall to the ground. The pain was across his whole abdomen and in his right arm and

\* Read at the annual meeting of the Sixth District Branch, at Cortland, September 27, 1910.

neck. The patient was picked up by some of his fellow workmen and taken home in a cab.

I saw him for the first time as a patient about two hours after the onset. His expression was anxious; skin moist and cold; complained of pain over the whole abdomen. The abdomen was rigid and retracted. There was slight decrease in liver dullness. He complained of great thirst. Had vomited some bile tinged fluid since he had gotten home. The point of greatest tenderness was just inside McBurney's joint. The patient was coughing some and there was marked dullness over the lung posteriorly. I was uncertain about diagnosis but believed the condition due to appendicular involvement. I advised operation but patient refused.

At twelve o'clock, nine hours later I saw the patient again. His expression was worse, pulse 96 and not so good, temperature 99 4-5 F. The abdomen was a little distended and more tender. He complained of being very sore over the pubic region to the right. He again refused operation and said that he would go to the hospital in the morning.

Was called at six o'clock, patient's expression was more pinched, said that he could not rest in any position, and could stand the pain no longer. The patient had vomited again.

At 8.30, time of operation, the patient's condition was very critical, the temperature was 100 1-5 F, pulse 110, mind a little hazy and he was restless.

*Operation.*—Ether, anæsthetic given by Doctor Ray Beardsley. Incision was made in right rectus muscle about three inches long, the center being on a line from anterior superior spine to umbilicus. Upon opening abdomen a great deal of turbid fluid came forth. The appendix was adherent and thickened and showed signs of previous trouble. It was removed. The incision in rectus muscle was extended upward to explore the duodenum, gall bladder, stomach and pancreas. Underneath the liver on the right was a deposit of lymph the size of a dollar. I examined the gall bladder, then the stomach, and duodenum. Just beyond the pylorus in the duodenum there was perforated ulcer about half the size of a pea and from which fluid was coming. Its edges were blackened and the undurated area was about the size of a dime. I closed the opening with a double row of interrupted stitches of linen. These were put in with some difficulty because of the character of the patient's breathing. A large drainage tube was put in the lower margin of the wound draining the pelvis and a cigarette drain was put down to the ulcer. The gauze in the cigarette drain was cut flush with the rubber to prevent sticking or adhering to the ulcer. The patient was put in Fowler's position and proctoclysis began.

The patient stood the operation well. During the night he was delirious and his pulse was irregular and intermittent. The following day

he said that he felt greatly relieved. He was still somewhat delirious. The drain at the site of ulcer and the large tube in the pelvis drained well. He coughed a good deal. Base of the right lung was flat and there were numerous large râles posteriorly and anteriorly. The third day following the operation, the pulse was down to 90, and temperature 99½ F. On the fourth, fifth, sixth, seventh and eighth days the patient coughed a good deal, but temperature and pulse were normal, respirations 22.

On the eighth day I removed the cigarette drain down to the ulcer and began giving the patient liquid nourishment by mouth. Three days later the patient did not look so well, pulse increased to 106, temperature 102 4-5 F. Inserted a large needle posteriorly on the right side in three places and found no pus; the abdomen was now in good condition. In the next two days the temperature came to 98 F., pulse to 80 and it looked as if the condition was quieting down. His respirations were still 24 and he complained of pain under the right shoulder blade. The base of the right lung was dull and there was present a friction rub on the right side. Left lung was normal.

Six days after removing the upper drain and thirteen days after the operation the patient felt chilly and his temperature arose to 104, pulse 112. His respirations were only a little disturbed. He was very restless and expectorating bloody sputum. There was a slight trace of albumen in his urine. At the lower margin of the right lung there was dullness with diminished tactile and vocal fremitus. Just above the dull area the breath sounds and vocal fremitus were increased with numerous râles. Left lung O. K.

Diagnosis was made of pneumonia, a frequent complication of duodenal ulcer.

On the following morning his temperature went to 99 F. still expectorating large quantities of blood. The same night temperature again went to 104, respirations 28. The condition of the lungs was the same.

The next day pulse and temperature a little higher, sputum a little darker.

Four days after the beginning of the high temperature, the sputum changed from dark rusty color to purulent and began to have a foul odor, pulse and temperature a little better. I again searched the chest posteriorly, but found nothing.

The patient still continued to raise foul fetid sputum for the next four or five days, but he appeared a little better. The symptoms and physical signs at this time made me suspicious of lung abscess.

Nine days after the temperature arose, and twenty-two days after the operation, I explored his chest posteriorly on right side with a needle. Upon making my needle puncture at the tenth inter space near to the spine no pus was sucked into the syringe but pus followed the needle

out. Expecting to find thick pus in the pleural cavity I opened the pleural cavity under cocaine anæsthesia at the tenth inter space about half the distance between the spine and the post scapular line, I got no pus.

Three days later I discovered pus coming from the needle puncture from which pus had followed the needle out. I again inserted a needle and got pus. I opened the chest under cocaine near the spine and evacuated about half a cup full of pus. The pus seemed to drain from about the eighth rib above and along the spine.

I then realized the exact condition—a sub-diaphragmatæ abscess had worked its way upward and had ruptured into the lung. The patient at the time of the last operation was desperately ill, delirious and in a slight stupor and I felt that a general anæsthetic and resection of a rib was inadvisable.

The following day his pulse was 130, temperature 103, and respirations were 30. He became very delirious and could take little nourishment, rectal feeding was again given. The patient's cough was not so annoying and his expectoration was greatly diminished, showing that pus was draining below instead of going up through the lung, there was edema of the tissues of the chest posteriorly with some inflammatory redness.

The next day the last incision was draining well and the wound in the pleural cavity made at a previous operation also draining well. Three days after the last incision, his mind was clearer and he felt hungry; still expectorating and coughing up fetid pus.

The fifth day after the last incision, probe could be inserted to the margin of ribs toward the right kidney. The drainage tube was draining up hill, but I promised to avoid operating again if possible.

He said upon leaving the hospital about three weeks later that he felt freer from indigestion and cramps than he had been for eight years. His cough and expectoration had ceased. When last seen he was ready to go to work.

### SOME LABORATORY TESTS AS AN AID IN THE DIAGNOSIS OF DISTURBED LIVER FUNCTIONS.\*

By LA RUE COLEGROVE, M.D.,  
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**P**ERHAPS there is no organ in the human economy, which by the normal performance of its various functions offers more of a protective influence towards the preservation of perfect health, or one which exerts more baneful or deleterious effects when its functions are altered or interfered with than those of the liver. Standing guard, as it does, between the gastrointestinal tract and the general circulation it

offers a strong barrier to the entrance of toxic or deleterious substances. The larger part of the nourishment and other substances taken up by the stomach and intestines destined for the nutrition of the cells of the body must pass through the liver by way of the portal circulation, superior and inferior mesenteric gastric and splenic veins, before gaining access to the circulation. In its normal condition it seems to be capable of passing judgment upon the substances brought to it as to whether or not they are proper to enter the circulation and changing most toxic bodies into inert ones as they pass through.

Certain tox-albumens, as indol and skatol, by-products of albuminoid digestion in the intestines by the action of the trypsin of the pancreatic juice are very poisonous, but during their passage through the liver they unite with the  $H_2SO_4$  of the hepatic cells and are converted into indoxyl, a non-poisonous substance which is excreted by the kidneys, and appears in the urine as indican. Therefore the prolonged absence of this substance in the urine would indicate the absence of trypsin, which in the presence of other symptoms would form a link in a chain of evidence pointing towards a pancreatic disease. Other poisons, as camphor, chloral hydrate and thymol are similarly dealt with in the liver by uniting with the glycuronic acid which are recognized in the urine by the polariscope being levorotatory.

If it does not, after the taking of camphor, it shows disease of the liver, hence in diseases of that organ care should be exercised in the administration of camphor for fear of poisoning. Its secretory and excretory functions are of far-reaching importance.

Anatomically we have a perfect apparatus, its component parts being a cell which forms the secretion, blood vessels from which it is derived, and a duct by which it is carried off. Every second, millions of red blood corpuscles are destroyed; they enter the liver, the hæmoglobin being changed by reduction into bile pigment, bili rubin being the main bile coloring stuff. The bile on reaching the intestines through the common bile duct is reduced by the action of the bacteria into urobilin, which is brown in color and which imparts the normal color to the fœces. The further reduction of urobilin in the lower part of the intestines into urobiligen, which is colorless, is the one upon which "Ehrlich's aldehyd reaction" is dependent, its complete analysis and true significance and importance having been shown by Prof. Müller, of Munich. The urobiligen is absorbed by the intestines and carried back to the liver by the portal circulation, where it is taken up by the liver cells (providing they are in normal condition) and reconverted into bile-pigment, entering into the biliary ducts and hence to the intestinal tract, thus completing the circuit.

You will observe in a normal condition where the liver cells are functioning physiologically

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urobiligen does not gain access to the general circulation, but if we have a disturbed function of the liver from any cause, the cells become incapacitated and are unable to take up all the urobiligen which is forced to enter the hepatic capillaries and veins, thus gaining access to the general circulation. Under these conditions it is excreted by the kidneys and may be detected in the fresh urine either by the test known as the "aldehyd reaction" or by the polariscope. The reagent for this reaction consists of dimethylamino-benzaldehyde-para, four parts, and dilute hydro-chloric acid 200. A few drops of this reagent added to 1 c.c. of fresh urine will give a distinct red color if urobiligen is present. It is absolutely essential that only fresh urine be employed as the urobiligen is quickly reconverted into urobilin upon standing. Urine containing urobiligen gives with the polariscope a dark stripe between the yellow and green. In cases of liver congestion due to valvular disease of the heart, urobiligen is found in the urine. This is of prognostic value. Its disappearance from the urine during the administration of digitalis shows that compensation is being established.

All forms of cirrhosis of the liver gives a strong "aldehyd reaction." With total obstruction of the common duct, whether from calculus or neoplasm, no bile enters the intestines, consequently no urobiligen is formed, hence a negative reaction. In acute jaundice with bile in the urine, but a negative "aldehyd reaction," a complete closure of the common duct is shown. As the duct opens urobiligen appears in the urine, when it again becomes negative, a cure of the temporarily deranged liver cells having become established. With the "aldehyd reaction" it is impossible to differentiate whether the obstruction in the common bile duct is due to a stone or a catarrhal jaundice. This differentiation can be made by the galactose test.

It will be observed that during an attack of obstructive jaundice, and at the time when the urine contains the largest amount of bile pigment and the skin shows the deepest jaundice, the "aldehyd reaction" remains negative. But, as the bile in the urine begins to recede the urobiligen appears in the urine, and becoming rapidly stronger persists with the jaundice for some time after the bile pigment has entirely disappeared from the urine. So, if a physician should see a case at this stage for the first time without any knowledge of the previous condition, with normal color of the fœces, urine free from bile pigment, but having a positive "aldehyd reaction" with icterus, a different deduction might be drawn as to the relation. To the surgeon the reaction is of paramount importance as it enables him to know before operating in gall-bladder work whether he has a complete closure of the common duct or not. In pyloric stenosis, which is usually caused by malignancy, the nature of

the operation is largely dependent upon whether or not there is metastasis, especially in the liver, as with this complication one obtains a positive reaction. A permanent negative "aldehyd reaction" in the presence of jaundice indicates that the common bile is obstructed.

Dr. Richard Bauer, assistant in Geheimrath Neusser's Clinic in Vienna, under whom I had the pleasure of studying for some time, has shown that in certain conditions of the liver, as various cirrhosis, alcoholic, luetic, biliary fatty degeneration, as well as in the condition known as catarrhal jaundice, that there exists a striking intolerance towards a certain carbo-hydrate-galactose (milk-sugar being composed of equal parts of galactose and dextrose). Experience has demonstrated that a healthy individual, or one suffering from other diseases of the liver, as congestion, stasis from valvular heart disease, metastasis or biliary stasis from occlusion of the common duct, whether from stone or neoplasm or echinococcus cysts, that such persons can assimilate approximately about 30 g. of galactose without any, or at least, only a trace being excreted by the kidneys. In other words of reaching his assimilation limit for that particular sugar or producing an "alimentary galactosurie" should the same amount be given to one with cirrhosis of the liver there would be excreted from 10 to 25 per cent. of the amount given. In making the test the patient is given, after urinating early in the morning, and upon an empty stomach, 30 g. of galactose in one or two cups of water or weak tea. He is directed to remain in bed four hours, having during that time nothing to eat or drink, and to urinate hourly for four times. The excretion begins with the first hour and becomes very profuse by the second or third, and then quickly recedes. The urine is to be collected separately for the four hours and the amount of galactose estimated in each portion, and the total amount ascertained. The dose is readily taken by the patient, causing no nausea and having no laxative effect, differing in this respect from levulose and the other sugars. It is very essential that as pure galactose as possible be employed, the kind usually found in the market being adulterated to more than half of its weight with grape sugar. Its purity may be readily ascertained in the following simple manner: A mixture consisting of 5 g. of the galactose to be used and 22 c.c. of  $\text{HNO}_3$  and 40 c.c. of water is evaporated over a water bath to about 20 c.c. Upon cooling the precipitate, mucic acid, known in German as Schleim-Säure, is washed, dried and weighed, and should amount to from 70 to 75 per cent. of the galactose used. In this way one should obtain from 5 g. of galactose 3.75 g. of sugar acid. If one employs a polariscope for the estimation of the galactose, which is adjusted for dextrose, he will obtain too high a value, but by multiplying the result obtained by .62 the correction will be made. In the absence of the polari-

scope it is astonishing how accurately one can estimate the amount by Fehlings.

Equal parts of the urine and Fehlings are boiled separately and after 15 seconds or counting 15, a few drops of the urine is poured into the Fehlings. If reduction occurs immediately there is present 1 per cent. or more of galactose. If after 10 to 20 seconds, .5 per cent., if after 30 seconds, .4 per cent., if after 60 seconds, .2 per cent. Galactose in the urine reacts as other sugars to Fehlings, differing in the fermentation test as to time. Sterile galactose urine rendered so by boiling will undergo no fermentation with yeast within six hours, while urine containing other sugars will be completely fermented within that time. After six hours the galactose urine begins slowly to ferment, the process being much hastened if any grape sugar is present.

The one property, however, which distinguishes galactose in the urine from other sugars is by oxidation with nitric acid, converting it into a fine white powder, known as Mucic Acid, which is insoluble in cold water, alcohol, ether, chloroform, benzene, sparingly soluble in boiling water, but very soluble in weak alkaline solution of K or Na, and in carbonate of ammonia solution the CO<sub>2</sub> being liberated with great rapidity. That this reaction is cirrhosis of the liver is due to some disturbance in the liver cells themselves, and not in the many complications which we frequently observe in this disease as ascites icterus, biliary stasis, catarrhal condition of the stomach, duodenum, etc., has been frequently demonstrated.

The deductions drawn from this test in Geheimrath Neusser's clinic are as follows:

Patients with cirrhosis of the liver excrete after taking 20 g. of galactose about 1 g. Increase the galactose to 40 g. the elimination will be 4 g. or more. Conversely if a patient after taking 40 g. of galactose excretes not to exceed 1 g. that patient does not suffer from cirrhosis of the liver. Patients with light forms of diabetes behave practically the same as healthy ones, while in severe diabetes his dextrosurie is increased along with some galactosurie. In catarrhal jaundice a distinct "Alimentary Galactosurie" is produced upon giving 40 g. of galactose, sometimes as high as 25 per cent. appearing in the urine. The morbid anatomy in this condition as usually explained as a catarrhal condition of the mucous membrane of the stomach, Duodenum, closure of the mouth of the common bile duct with resulting biliary stasis is not sufficient for this phenomena, as the reaction is not only positive during the time of the acholic stool, but also for some time after the stool has become normal. In jaundice, due to occlusion of the common duct from stone or neoplasm, the reaction is negative. So the closure of this duct, with the resulting biliary stasis, cannot be a causative factor for this reaction. There must be some temporary disturbance in the liver cells, perhaps

a toxic one in the condition known as catarrhal jaundice. The differential diagnosis at times between icterus cases is often difficult. By the galactose test we have undoubtedly a valuable means of aiding us in our diagnosis and subsequent treatment.

### GLAUCOMA.\*

By R. L. CROCKETT, M.D.,

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THE subject of glaucoma may seem to be more suitable for discussion at a meeting of specialists than one of general practitioners, such as is assembled here to-day, but in view of the fact that so many cases come to the specialist so late in the disease that there is no chance of bringing about a cure, anything which will attract the attention of the general practitioner to this subject and aid him in making an earlier diagnosis in these very serious cases will undoubtedly be the means of saving many eyes which otherwise would be lost.

For we must not attempt to evade the fact that these cases ordinarily are not diagnosed as early as they should be in order to obtain the best results from treatment, and it is not surprising that such is the fact when we consider how little time is devoted to diseases of the eye in the ordinary medical course, and the multitude of things which occupy the time and attention of the busy physician.

Priestly Smith has defined glaucoma as "Increased intra-ocular pressure, plus the causes and results of such pressure."

The intra-ocular pressure depends on the amount of fluid held within the coats of the eyeball.

This intra-ocular fluid is secreted by the epithelium covering the ciliary body. This secretion seems to be more or less under the control of the sympathetic nervous system, and some consider glaucoma a disease primarily of that system. However this may be, it is a fact that stimulation of the cervical portion of the sympathetic produces dilatation of the pupil and increased blood pressure, thus causing increased secretion from the ciliary body and increased intra-ocular tension. Conversely excision of the superior cervical ganglion of the sympathetic produces a contracted pupil, decreased secretion of fluid and decreased tension.

The intra-ocular fluid, with the exception of a small amount which escapes through the lymph spaces which surround the central retinal vessels, finds its exit from the eye by two paths, one by the so-called spaces of Fontana, which are lymphatic spaces opening in the angle between the attached border of the iris and the cornea into a lymphatic channel known as the canal of Schlemm, which in turn empties into the anterior

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ciliary veins, and the other through numerous small openings on the anterior surface of the iris and thence through the iridial veins.

In persons predisposed to glaucoma, an attack has been brought on by the instillation of a mi-driatic. This is generally attributed to the blocking of the spaces of Fontana by the pressure of the dilated iris, but an important contributory cause may be found in the closure of the filtration openings on the anterior surface of the iris.

Various theories have been advanced as to the etiology of glaucoma, some ascribing the disease to increased secretion of intra-ocular fluid, and some to decreased facilities for the escape of that fluid from the eye, but no one theory seems to cover all cases and probably we shall eventually find that what we call glaucoma is, instead of a single disease, really a number of different diseases, each with its own separate cause. At any rate we know that in glaucoma we have an increase of intra-ocular pressure which, if not relieved by some means, will destroy the sight of the eye.

Glaucoma, that is primary glaucoma, may be classed as simple or non-inflammatory, and inflammatory.

Simple glaucoma is characterized by the absence of inflammatory symptoms such as we find in the other form of the disease, and for this reason is apt to be mistaken for atrophy of the optic nerve, or even cataract. These cases are generally mistaken for cataract, and the patient is told that he must wait until the cataract is ripe, when it can be operated on and he will regain his sight. The patient waits and when the vision is gone, consults an ophthalmologist, who is obliged to tell him that the time has gone by when anything can be done for him and that his blindness is incurable. In a person who has reached or passed middle life and has a diminution of visual acuity which is not corrected by appropriate glasses, we should immediately think of glaucoma, and not dismiss that thought until it has been proved by an ophthalmoscopic examination that such condition does not exist.

The symptoms of simple glaucoma consist of a gradual diminution of visual acuity and a contraction of the visual field, that is, while the person may be able to see an object fairly well if he looks directly at it, if it is a little to one side, it may be entirely invisible to him. This phenomenon arises from the fact that the peripheral portions of the retina are affected by the disease, and their sensitiveness destroyed before the central portions, and is an important point in diagnosis. Another thing which may aid in distinguishing this disease from cataract is the color of the pupil. In cataract when the pupil is abnormal in color it is apt to be of a grayish color, but in glaucoma the tinge is greenish. An ophthalmoscopic examination is generally necessary to make the diagnosis in the stage where we can hope for the best results from treatment.

In inflammatory glaucoma the symptoms are different, we have inflammation, pain and often constitutional symptoms, such as intense headache, fever, nausea and vomiting and general prostration. These symptoms may be so violent that the visual disturbance is overlooked or disregarded until the chance of improvement is either entirely lost or greatly diminished.

Two such cases furnished the inspiration for this paper, both were attended by physicians whose skill and ability was at least equal to the average of our general practitioners; both were treated for their constitutional symptoms, ignoring the eyes altogether, for from ten days to two weeks before I saw them, in both cases light perception was lost in one eye and the patient could not count fingers with the other. Both were immediately operated on and the inflammatory symptoms subsided, but the best vision obtained in either case was barely sufficient for the patient to see to go about with.

In contrast to these was another case which I had the good fortune to have reported to me during the first twenty-four hours of the attack.

This woman had previously lost her other eye as a result of the same disease and the attention of her physician was immediately called to the eye with the result that I did an iridectomy and she recovered her vision. That was more than a year ago, and I saw her the other day and examined the eye. She had had no inflammatory symptoms since she was operated on and has a vision of 20/20. This gives one an idea of the difference in results to be expected between a case diagnosed early and one diagnosed late in the disease.

If this teaches anything, and I think it does, it teaches that it is important that any sudden loss of vision, accompanied by pain in the head, nausea and vomiting should be regarded as a serious condition and one which demands prompt treatment.

In a typical case of acute inflammatory glaucoma the appearance of the eye is characteristic, the conjunctiva is injected, the cornea steamy in appearance and the pupil moderately dilated. This dilated pupil is an important point in the differential diagnosis between glaucoma and iritis as we shall see later.

If we palpate the eyeball through the upper lid we find that it is harder than normal—often the eyeball is of stony hardness.

Untreated, this condition usually remains for a few days or weeks and then subsides, leaving the eye with the vision either totally destroyed or only damaged according to the length and severity of the attack.

Sometimes the first attack is so violent that vision is totally destroyed, but more often the severity of the symptoms subsides after a few days and a certain amount of vision is restored to the eye. But this respite is only temporary as sooner or later other attacks come on and com-

plete the destruction of sight or the disease merges into the chronic form with congested eyeball and increased tension-sight being finally abolished.

Sometimes the disease is chronic from the beginning and the symptoms consist of congestion of the eyeball and failing sight with the characteristic dilated pupil. These cases are generally treated as conjunctivitis or iritis and atropine is often prescribed, which, of course, hastens the ruin of the eye.

Inflammatory glaucoma resembles iritis in that both are accompanied by pain and inflammatory symptoms but differs in two very important particulars, the size of the pupil and the tension of the eyeball. In iritis the pupil is either normal in size or contracted, never dilated unless a midriatic has been instilled; while in glaucoma, that is, the acute form, the pupil is dilated. In glaucoma the tension of the eyeball is raised as will become evident even to the inexperienced observer if he will take the trouble to make the test which is made in a similar manner to the way in which we try to obtain fluctuation in a case of suspected abscess, while in iritis if there is any alteration in tension it is apt to be along the line of reduction on account of involvement of the ciliary body in the inflammatory process and a decrease in the secretion of intra-ocular fluid.

If we bear in mind the fact that uncomplicated senile cataract is never accompanied by inflammatory symptoms we are not likely to mistake this type of glaucoma for cataract.

Since the pain of glaucoma is neuralgic in character, the diagnosis of neuralgia of the fifth nerve is often made, but we will not make that mistake if we remember that neuralgia does not cause a dilated pupil, increased tension and blindness.

Secondary glaucoma is generally caused by old iritic adhesions which interfere with the proper drainage of the eye. These cases sometimes follow a severe iritis or come on after an operation for cataract. The symptoms are the same as in the inflammatory type of primary glaucoma.

In regard to treatment, the only curative treatment is operative, although the disease may in many cases be temporarily relieved by the use of miotics. It is safe to say that in the great majority of cases of acute glaucoma an operation properly selected and carried out will at least arrest the course of the disease, a result which in view of the fact that without treatment the eye goes on from bad to worse and the final result is total blindness, may be considered decidedly gratifying.

Much is said these days on the subject of preventable blindness and considerable attention is given to ophthalmia neonatorum, but in this section of country at least the cases of blindness resulting from glaucoma much outnumber those from the other disease.

In glaucoma we have, if not a preventable

disease, one which is in a measure curable in its early stage, and it is our duty to recognize it in that stage and see that the appropriate treatment is applied. By so doing we will greatly diminish the number of cases of preventative blindness and subtract at least a small amount from the sum of human misery.

### THE OUTLOOK—AN APPRECIATION.\*

By A. S. CHITTENDEN, M.D.,  
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**T**HE development of the art of medicine had its origin in the perfecting of an elaborate superstructure designated as symptomatology.

Diseases were studied and classified entirely according to their external manifestations.

Certain symptom-groups or complexes which occurred with more or less constancy were given definite names. The nomenclature was frequently descriptive (*Variola-spot*), or suggestive of etiological factors, *mal-aria* and *syphilis*, etc. These symptoms often varied from the arbitrary limits set for them by earliest observers and a hyphenated nomenclature appeared—a compromise which preserved all errors and frequently added more.

Disease classification—a loosely connected system of symptom-groups with a correlated and looser system of theories in causation—was handed down from Hippocrates through the early times like the Talmud, its original expression intact and unimproved, but its external form made more and more complex through the accumulation of successive commentaries. In fact so seldom were accurate differentiations made from the Hippocratic classifications that but few such names as *Sydenham* stand out in medical history.

The earliest therapy, consisting of water, heat, cold, dietetics and hygiene, gradually acquired spurious additions and variations, many being weird and useless, while others were harmful.

At the time of the burning of the Alexandrian library, chemistry or alchemy had reached quite a high degree of development, especially in the distillation and sublimation of volatile metals such as *Sb.*, *As.*, *Hg.* and *S.*, and a knowledge of these fundamental chemical processes enabled the Arabians to produce mineral acids, basic salts, tinctures and alcoholic extracts. This knowledge, transmitted to Southern Spain and Italy by Moorish immigration, was imparted by precept from teacher to pupil in the family line. It became intermingled with necromancy, astrology and horoscopy and was regarded by the masses as something superhuman. Its possessors became a cult by themselves, and at the dawn of the Renaissance they appeared as a sinister group, hardly allied with medicine, but rather with its antithesis—the gentle art of poisoning.

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It was from this amiable group of assassins that the physicians of the Seventeenth and Eighteenth Centuries derived that medication from which, during a long period, too few patients survived.

Having brought volatile preparations of Sb. and Hg. and distillates of alkaloidal poisons to a high point of efficiency, these alchemists could profitably add to the art of toxicology that of prophesy, and predict with amazing accuracy the untimely demise of almost any person whose passing seemed desirable. These alchemists were in high favor at Court, ranking with the Court physicians. There is nothing more monstrous in the history of French Renaissance than the part played by the Ruggieri in shaping the destinies of the houses of Bourbon and Orleans.

In the Chateau d'Orleans we find Ambroise Pare begging Catharine di Medici for permission to trephine Francis II for mastoid abscess, and at the bedside Catharine absorbed with Ruggiero, and planning the poisoning of the Duc de Guise.

But with the passing of the Renaissance came the passing of the poisoner pure and simple. He began to acquire medical lore from the physician and the physician acquired a knowledge of dangerous chemical substances from him.

The physician of the Eighteenth Century was, then, a mediocre but entirely adequate poisoner, who had mislaid the simple therapy and clearly defined classifications of Hippocrates, and had become hopelessly swamped in a sea of commentaries. But he was zealous; he bled and purged, he nauseated and salivated. His mortality was as high as his zeal.

At this juncture a man appeared, a Luther in medicine. He had a good university education; he was familiar with toxic substances; he recognized toxic results all about him, his name was Hahnemann and he had a great idea. Jenner, in 1796, had published his experience in the protective result of a mild cow pox in a milkmaid in England. This attracted much attention in Germany. Hahnemann reasoned that if he were to intoxicate himself with different drugs he might be able to procure symptom-complexes, then recognized as definite entities in the list of diseases. He tried it and certainly got symptoms, toxic, of course, and these he tabulated; then he reasoned that by giving infinitesimal doses he might immunize against those symptom-complexes which he regarded as identical with definite diseases. So he tried minimum doses on various persons in disease and more of his cases survived than any one's else. Whereupon in 1810, he wrote a book called "A System of Rational Therapy," and so it was, relatively—and thus there entered into the Art of Medicine a schism which clave it from crown to chin, which was of great value at the time, and which has done little harm since.

Let us turn from medicine as an art with its

divided camp in therapy to another matter. With the early Reformation came a general revolt in every intellectual field against all forms of dogma. In fact dogma and scholasticism had blockaded material advancement in the natural sciences for fifteen hundred years. The medicine of the times was held as the mistress of the natural sciences and practitioners were but incidentally interested in physics, chemistry, astronomy and mathematics. The introduction of yearly dissections at various seats of learning rather upset some of the dogmas of Hippocrates, Galen and Avicenna, and represented in medicine the general spirit of independent inquiry. The primitive humoral theories of blood, bile and phlegm did not bear examination under the dissections of Vesalius at Paris. These dissections meanwhile were being immortalized by Rembrandt through the new process of etching on copper. Ambroise Pare ligated arteries, trephined, and was developing the mechanical side of surgery. Leeuwenhoek had devised a microscope and was studying infusoria at Delft. Malpighi was studying botany at Bologna and demonstrated meanwhile the capillary circulation. Harvey proved the circulation of the blood in England, while Torricelli devised his vacuum and barometer and improved the microscope. The introduction of gun powder into warfare made greater demands upon surgeons, while the development of printing more rapidly diffused knowledge. Later, in the eighteenth century, Priestly and Lavoisier discovered and named oxygen and determined its relationship to respiration.

Thus little by little these physico-chemico, biological physicians adduced to the aid of medicine, not schism and dogma, but a vast deal of knowledge drawn from the natural sciences. Bichat synthesized in his treatise on Life and Death an immense amount of information from every conceivable source, but all bearing on histology, anatomy, and physiology. Auenbrugger in Germany, Laennec in Paris merely applied the principals of resonance and vibration to the human body, and systems of auscultation and percussion resulted. Schlieden and Schwann, through the study of protozoa, laid the foundations of cytology upon which later Virchow built his Cellular Pathology. Urea was synthesized from inorganic substances by Wöhler, thereby breaking down what seemed to be an absolute barrier between the organic and the inorganic world. Hoppe-Seyler applied organic chemistry to the human body and his followers succeeded in reducing many human organic substances to their lowest terms. Thoma investigated disturbances of the circulation and found he could express them in mechanical terms. Cohnheim explained exudative inflammation; Claude Bernard demonstrated the glycogenic function of the liver. Pasteur undertook the study of the contamination of French wines and



discovered the facts upon which Lister's work in asepsis was founded. By the use of the medulla of rabid animals he developed the principal of immunization by successive injections of sublethal doses of toxic substances. With the study of trichiniasis came the idea of the intermediate host. Koch by the determination of the life history of the tubercle bacillus and the formulating of his axioms laid a firm foundation for bacteriology.

These fragments of absolute information, gathered from biologist, physiologist, chemist, botanist and whereto began to fit together forming a definite, rational whole; not a question without an answer—but a perfectly balanced, satisfied equation. This surely was not the art of medicine; it was the science of life, with its logical variations under given conditions.

As I have said, the art of medicine began with a superstructure; it could hardly have been otherwise in the absence of the natural sciences and their technical devices. With the advancement in general scientific knowledge, however, the study of the nature and etiology of disease was rapidly becoming a highly specialized science. But what of therapy and treatment?

Therapeutics, the rock upon which the Art of Medicine had split, was at a standstill. Dogma, tradition and empiricism had fostered the inevitable sectarianism which always associates itself with belief as contrasted with knowledge. "The sectarian," says Mr. Flexner, "begins with his mind made up. He possesses in advance a general formula which the particular instance is going to illustrate, verify, confirm." And until late years, therapeutic medicine, with its various hostile camps, has continued to bear the hallmarks of mediæval scholasticism, while the real problem of medicine—the amelioration and prevention of disease—has been all but lost in schism. Small wonder that we have heard somewhat of therapeutic nihilism from the seats of the mighty! As a matter of truth, aside from a few relatively specific protoplasmic poisons, drug therapy has been in a sorry state; and it has remained to a small group of men, with the same lights and leading as those who developed the natural sciences, to point the way to the solution of the problems correlated with the nature of disease—its amelioration and prevention.

Immunity as induced by Jenner and Pasteur, without knowledge of underlying etiological factors seemed uncorrelated with fleeting immunity as induced in diphtheria; and the latter seemed unreconcilable with the inherent and stable immunities. That Ehrlich should have been able to construct, *a priori*, a theory which not only explains and reconciles these phenomena, but also has proven the unfailing guide to further advances seems little less than superhuman.

Embryologists have shown indubitably that two primal, germinal-cells, while developing in

utero, repeat in those nine short months the entire evolutionary history of the race. Workers in hæmolysis and immunity, basing their investigations upon the elaborations of Ehrlich's hypothesis, have shown that each specific tissue of our complicated bodies has its own specific defensive apparatus inherent in its protoplasm; and that, in the somatic unit, there is among the highly specialized glandular and other tissues a community of interests binding them, through a common strain of protective arrangement, in symbiosis and alliance for the common good. Moreover, this power of defense represents in man the summation of infinite numbers and types of immunity as they existed in his prototypes eons ago. The persistence of these various immunities, their disappearance or variations probably have much to do with man's supremacy, with racial differences, with genus and with species, and forms the basis of disease processes in every field of biology.

This protective arrangement is of two kinds; one against intoxications of intra-corporeal origin—the so called auto-intoxications as observed in eclampsia, uraemia, acute yellow atrophy, thyroid disease, etc. This form of immunity remains as yet obscure and unelucidated. The second protection is against intoxications of extra-corporeal origin and against bacillary invasion. The ability of the body to maintain these defenses in a sufficient degree determines, of course, individual resistance. Why should this be greater in one person than in another? If a child in utero repeats during the period of gestation the entire evolutionary process of the race, why should not that child conserve all the powers of immunity peculiar to its permanently arrested prototypes in the biological scale?

And this brings us to the crux of the whole matter of infections. Having brought together all the facts in biological science, we are coming to the point where we can consistently ask ourselves, not, "why do people die of this or that infection"—but rather, "why do they not die?" If we can determine the nature of the normal protective mechanism, it is reasonable to hope that we can reproduce it, borrow it and lend it.

With Ehrlich's theory as a working basis Sir A. E. Wright, Douglass, Philip Hiss and others have inaugurated what promises to be the only rational therapeutic measures against zymotic diseases that the world has ever known; and these measures are founded upon the utilization, conservation and imitation of the natural mechanism of protection. It is, therefore, essential that those of us who are in the ranks should have at least a working knowledge of vaccine and serum therapy, of its dangers, its possibilities and its limitations.

We must know that antitoxic and antibacterial immunity are quite different. We must early come to appreciate the highly specific, specialized character of the response of the body-cells to infection; that it is the bacteria themselves

which awaken or activate the tissues to the production of opsonins—substances which make these same bacteria more easy of ingestion by the leucocytes; that, as Adami points out, whereas, even in a general bacteræmia the majority of the tissues can destroy the bacteria, yet there are certain points of election where bacteria more readily flourish—as upon the heart valves. That in infections, while probably most of the tissues become potentially involved, they triumph—abscess—formation representing merely a site of low opsonic production. That walling-off processes, whereas they are conservative as far as dissemination is concerned, also prevent ingress thereto of opsonic bodies formed by remote activated tissues, thereby excluding such areas from the benefit of the community protective arrangement. That fall and rise of temperature are direct indices of rise and fall of opsonic production. That bacterial vaccines are useful only to stimulate tissues, for any reason inactive, to opsonic production—rather than to load upon an already over-activated organism still further stimulation. That in general, bacteremias such as strepto-septicæmias and pneumonia, wherein the tissues are already over-activated by overwhelming infections, our hope lies in increasing phagocytic power itself by the use of leucocytic extracts after the manner of Hiss and Rosenow. And that finally, bacterial vaccination must be of the highest specificity, namely, of the autogenous variety and that stock vaccines, in the main, cannot be hoped to be efficient any more than that any Yale key can be hoped to fit any Yale lock.

With this conception of the specific character of the defensive response to infection, failure to obtain Widal reactions in many continued febrile conditions becomes clear; such instances represent, doubtless, infections of the colon group other than the bacillus typhosus, namely, the paratyphoids. Conversely, that immunization by inoculation against typhoid in English and American armies is successful in only 75 per cent. is quite possibly due to the fact that the inoculations are not always affected with true bacillus typhosus or that the 25 per cent. of cases subsequently attacked are not true typhoid. The possibilities of the uses of normal serum are but just being appreciated; the simplification of the technique of transfusion has already placed in our hands a powerful weapon against bacteremias and hæmophilias.

The future of our efficiency in combating diseases of obscure origin and inception lies, I believe in the study of inaugural conditions. The pre-sclerotic state of arterial change; the pre-renal conditions of nephritis as represented by liver insufficiency and its failure to bind the amine bodies; deficiency in the flora of the intestines—normally calculated to inhibit putrefactive absorption; the interaction between thyroid, pituitary and supra-renal glands—all these are mat-

ters vitally concerned with the incipency of those conditions which we have hitherto found intractable or fatal, in that we have, so far, only recognized their advanced or terminal aspects. We are entering upon the development of a new study which Moynihan calls "The Pathology of the Living." "It is more important," he says, "for us to know the pathological conditions which cause a patient's present sufferings—a pathological change which is perhaps remediable—than it is to know the fullest particulars of that unhindered morbid change which has at last caused death; our chief purpose is to heal the living."

The placing of surgery upon a relatively safe and painless basis has made possible the early study and relief of inaugural pathological conditions and their symptoms. Since no clinician can possibly diagnose cancer of the stomach at its beginning, how important it is we should recently have learned that ulcer of the stomach does not tend to permanently heal, and if it does, that pyloric stenosis usually follows; that ulcer of the stomach is more often than not the prodrome of cancer; that gall-stones, ulcer and chronic appendicitis are in *most instances* at the *bottom of the chronic gastric and intestinal disorders!* That the surgeon should be, as Nancrede suggests, an internist who operates, or that, as Cushing believes, the brain surgeon should be neurologist *and* surgeon, must form the basis of the equipment of the men of the future who would do surgery as well as it can be done.

In the same degree that schism and dogma have failed to add anything to our knowledge of causation in disease or of efficient therapeutics, so have they been conspicuously absent in the advancement of that crowning glory of Modern Medicine, the science of Prevention. Again, the entomologist, the naturalist, the botanist, biologist and bacteriologist has each contributed his quota in the study of the intermediate host. The passing of the flea, louse, mosquito, lower rodents, tse-tse fly, etc., means the passing of groups of diseases which have decimated the earth.

The correlation of facts and the concentration of activities resulting from the appointing of a federal bureau of health will give rise to an efficiency in the study and amelioration of disease hitherto undreamt. Accurate serum and anti-bacterial therapy, exploration, recognition and correction of inaugural disease conditions, preventative medicine, and finally, and which makes all the rest worth while, the pursuit of Eugenics and Philosophy of Living, these, I believe, constitute the Outlook in Medicine, and their realization will "found the beginning of a time." That schism and pathies should find a place here is unthinkable; all that is required is patience, hope, diligent observation—no perceived system; for "the old order changeth, yielding place to new, and God fulfills Himself in many ways, lest one good custom should corrupt the world."

## PRESIDENT'S ADDRESS.\*

By W. W. SKINNER, M.D.,  
GENEVA, N. Y.

### THE PHYSICIAN'S PLACE IN SOCIETY.

**A**T a charming little hotel in the Adirondacks a bouquet of wild flowers decorated one of the tables. One particularly delicate flower attracted the attention of several of the guests. A pompous madam of mature years, whose complexion suggested beefsteaks rather than roses, expressed a dislike for wild flowers, and stated that her pastor, in a certain city, never allowed them in his church. None of the guests knowing the name of the flower, the waitress at the table was appealed to. She instantly gave the name, and to the surprise of all, its family and genus. On being questioned further, she stated that she had studied botany in high school, and besides, that her mother was a good botanist. Further, that she had younger brothers and sisters and that she was working to help keep them in school.

The waitress had a place, the pompous madam occupied a position in society.

I relate this incident because I am about to discuss the physician's place in society, not his position.

The true physician secures his place in society primarily because of his ability and readiness to serve mankind by securing or promoting health, and by eliminating or moderating disease. This function, in its broadest sense, applies to practically all the ills which both flesh and mind are heir to. It includes the preservation alike of the purity and salubrity of the skies above and of the lands and waters below. Further than that it controls the relations of men to both, and with each other. This relation in conditions of sanity is direct and actual; in conditions of insanity it is imaginary and unreal. The physician deals with both.

In perusing the history of ancient and medieval medicine one is filled with wonder at the long and painful labor through which the master minds of the many centuries have toiled slowly upward to the place of modern medicine, and when one surveys the broad expanses on ahead before perfection is attained he can almost feel the icy blasts of further towering peaks blowing in his upturned face.

Those of us who were studying medicine in the early eighties were taught to deride the "materies morbi" of the older writers; and were told that disease was chiefly a disturbance of the balance of the system, a "condition" as vague as the "errors" of the Christian Scientists.

Our postgraduate studies early discovered to us the un wisdom of our teachers, and taught us the lesson that professorial arrogance may be an unsafe foundation for temples of science.

To-day, the transmigrated soul of an ancient humorist might well wax humorous at our tardy recognition of the function of internal secretion.

Despite the great and material advances of modern medicine the task of surmounting disease never has been and never can be completed. Fields have been conquered; but the war is never over. Its lines are only shifted. Certain diseases may be stamped out and their interest rendered historical; but nothing can control the occurrence of new factors of decay.

The ills of proverty may be eliminated by controlling population increase, and preventing centralization of settlement; but the former ills of massing will be forgotten, and old tendencies will recur. Danger ever threatens security, and dry rot destroys as surely as flood.

For these reasons, the demand for physicians will be perennial, yes permillennial, but the struggle is ever worth the while, and the human race, and indeed all living creatures fostered by their care, will ever continue to bless the medical profession. Some great philosophers have seriously doubted whether medicine and surgery, in saving defective forms are not, after all, really doing the race a lasting injury by interfering with the course of natural selection, whose operations tend to cut off the weaker strains, to the preservation of the stronger. This may be true for the immediate future; but science is always observant and always open to conviction; and the success of to-day will become the experimental demonstration of to-morrow whose lessons will determine the future attitude of the profession and the action of the race.

Granting, however, that the philosophers of the future shall decide the labors of the medical profession in their crusade against disease to have been of no effect or detrimental, there is still one crowning glory which must ever shed honor on the brows of medical men. This is the absolute devotion of the great body of the profession to the spirit of truth. Medical science has no permanent devotion to dogma. It is ever ready to receive the truth and to frame its opinions strictly in accordance with the evidence. It has no reverence for the lie well stuck to. Its demand is demonstration.

It was while pursuing his medical studies that Galileo imbibed the spirit of independent investigation and judgment that led him to discover the laws of falling bodies and thus to overturn the errors of Aristoteleian dogma concerning them. That same independent spirit led him on to the discovery of the satellites of Jupiter, and to the conclusion that the sun never stood still over Gibeon, nor the moon in the valley of Ajalon.

The hypothesis of immaculate conception will yet be weighed by a court of embryologists.

The only force which can ever weaken the medical profession will be the consuming maladies of internal rottenness. Consuming greed and thirst for power, the results of the

\* Read at the annual meeting of the Seventh District Branch, at Geneva, September 15, 1910.

too great enjoyment of the fruits of success, may yet be our undoing.

The Church, degraded by its misuse of the powers acquired through its supposed ability to dispense the joys of heaven and the woes of hell; the Law, the supine slave of corporate greed and plutocratic rascality, should serve as a skull and crossbones to warn us from similar intoxications.

Ours is the profession which teaches men to live and move and have their being; and while we hold ourselves to that work we shall merit and receive the respect and affection of mankind.

### ANIMAL EXPERIMENTATION.\*

By A. W. ARMSTRONG, A.B., M.D.,  
CANANDAIGUA, N. Y.

MUCH is known but an infinite amount is still to be learned in every branch of medicine, and those who are best informed agree that the study of living animals has been and will be of greater help in the progress of practical medicine, surgery and hygiene than any other agency.

The New York Anti-Vivisection Society has undertaken a campaign against vivisection and is sending out some of the rankest, most misleading literature that can be imagined reciting, "The Atrocities and Abuses of Vivisection Laboratories." Through their president<sup>1</sup>, the society has placed itself on record as opposed to all animal experimentation and define vivisection as, "The practice of subjecting living animals to experiments for scientific purposes." They would include in this also experiments on man himself and remind us that "All experimental uses of living subjects not undertaken for the purpose of administering some benefit to the subject thus used, constitute vivisection." Some newspapers and magazines notably, the New York *Herald* and *Life* have championed the cause and much is being said which may some day influence legislation. The enactment of laws which would limit or prohibit the use of animals for scientific experimentation would work great hardship in the progress of the biologic sciences.

Much can be done by the individual practitioner in the matter of educating the people as to the true value of animal experimentation and it is the purpose of this paper to direct your attention to some of the discoveries which have been made through these experiments and the practical application of the results.

In physiology, animal experimentation has eliminated the errors of the old mythical beliefs as to the functions of the body and has established this branch of science upon a basis of proven facts. Anatomic sources of information

with regard to physiologic facts were found to be unreliable, and William Harvey by dissections of living animals discovered the circulation of the blood after other men working on dead animals had been deceived for over 2,000 years.

The important knowledge relative to the transfusion of blood which has so recently been established, by which it is possible to transfer blood from father to son has opened a new field for the saving of life not only in the acute anæmia of hemorrhage but in numerous other conditions as well. This is the direct result of animal experiment. The same is also true of the infusion of saline solution, that great boon in the minimizing of shock and the saving of life. The mechanics and chemistry of respiration were discovered by experiments on animals, and the physiology of digestion would have been unknown to-day had it not been for the careful work done on living animals.

Our knowledge of the functions of the internal organs, the secretions of the ductless glands, the nutritive value of food and its relation to health and energy, the physiology of the nervous system, cerebral localization and the problem of the reflexes is founded upon animal experimentation. "The relation of man to his parasites," as established by the great Darwin was a product of animal observation and experiment. The evolution of embryology has been made possible and someday man may interest himself as much in the propagation of splendid men and women as he now does in the breeding of fine horses and hogs. The practice of these methods has added much to our knowledge of the practice of medicine and to quote Dr. Warbasse,<sup>2</sup> "As we look over the diseases with which man is afflicted and think of the studies which have contributed to their elucidation it is difficult to find one, the understanding of which has not been helped by animal experimentation."

In the study of *infectious diseases* by this means it has been made possible to discover the bacteria causing the majority of them including anthrax, bubonic plague, diphtheria, cerebro spinal meningitis, glanders, gonorrhœa, dysentery, pneumonia, tuberculosis, leprosy, tetanus, septicæmia, cholera and typhoid fever. Epidemic poliomyelitis has just been added to the list of communicable diseases because it has been found possible to produce the disease in monkeys and to transmit it through a series of these animals. The first step in its conquest has thus been made and with the co-operation of every physician in making a field study of this malady it may soon be possible to interrupt a long line of dead and crippled children.

Knowledge must be *acquired* before it can be *applied*, and just as soon as we are able to fully apply the knowledge which we have now in regard to many diseases such as typhoid fever

\* Read at the annual meeting of the Seventh District Branch, at Geneva, September 15, 1910.

<sup>1</sup> Diana Belais. *Cosmopolitan*, July, 1910.

<sup>2</sup> Dr. Warbasse. "Animal Experimentation." D. Appleton & Co., N. Y.

and tuberculosis these horrible destroyers of human life will want for victims. In the application of this knowledge animal experimentation is our chief ally. Diphtheria, the mortal dread of mothers, when treated early by antitoxin now has an almost insignificant mortality. Smallpox among the recently vaccinated is seldom fatal, and yellow fever has ceased to be the "scourge of the western hemisphere." By the use of Wright's anti-typhoid serum a high degree of immunity from typhoid fever seems to be already practical. From the use of this vaccine among those soldiers of the British army who voluntarily accepted vaccination against typhoid, it has been possible to reduce the mortality one hundred times. That means that if every person in the United States were vaccinated against typhoid 39,600 persons would be prevented yearly from dying of the disease. It might be mentioned here, however, that in the prevention of this disease we no doubt have to do with the commonhouse fly and there is an indefensible indictment against him.

To one of our own State, Dr. Trudeau, belongs the honor of establishing the foundation for the marvelous campaign which will ultimately give us freedom from tuberculosis. This he did by demonstrating upon animals the influence of favorable environment. The outlook for the perfection of an antitoxin against tuberculosis is hopeful.

By experiments on animals, India is to be spared from plague which has caused the death of five million persons during the past ten years. An antitoxic serum against *cholera* has been perfected and is being used with good results in that same country.

Since the beginning of the present month from the laboratory of one of the most famous animal experimenters, has come a most encouraging word concerning the treatment of that most loathsome disease of modern times—Syphilis.

We have only time to mention the fact that experiments upon animals have added much to our knowledge of the cause, nature and cure of sleeping sickness, smallpox, myxedema, cretinism, acromegaly, Addison's disease, diabetes, rabies, arteriosclerosis, hookworm disease and cancer, and it should be remembered too that all the drugs which have a positive recognition and use have been placed upon a scientific basis by this means.

When we come to consider the *surgery* of animals we find that it is the same as that of man. Upon whom should the *new* operation be performed? Everyone should answer, "Try it on the dog." In the surgery of the brain, animal experimentation has made it possible to locate and remove tumors and foreign bodies and relieve hemorrhages which would cause certain death or incapacitate for life. The perfection of the principles involved in the transplantation of organs, intestinal surgery and the surgery of

bones has been accomplished through experiments on living animals. The discovery of the cause of tetanus and the perfection of the anti-tetanic serum by the use of which scores of lives are saved from that most frightful of surgical diseases is the result of vivisection.

The benefit derived from this important work is shared by man with the animals themselves, and disease among them is being studied, prevented and cured in ways which would otherwise be impossible. The trichinæ problem which formerly involved a loss of fifty million dollars annually in the United States has been solved.

And now let us consider the cause of the Anti-Vivisectionist. As long as there is in existence a class of unemployed, well to do or wealthy, poorly educated, misguided, sentimental women so long will there be opposition to the advancement of scientific truth.

The attack which was recently made upon the Rockefeller Institute and Dr. Simon Flexner, from whom has come the most wonderful achievements of the times—the perfection of the curative serum against cerebro-spinal meningitis, was a shame and disgrace to a civilized country. The "exhibit" which was conducted in New York City during the past year has been well described by Dr. Lee in an open letter which you have all had an opportunity to read. I quote his closing sentence: "In the minds of those who both know and respect the truth, the New York Anti-Vivisection Society stands under the deceitful mask of a pretended moral leader, as an obstructionist, a partisan of vicious principles and practices, and a foe of the public good."

They ask our legislature to pass laws which will at least restrict vivisection if not abolish it, and demand the "Open Door." They describe experiments as "odious," "atrocious," "horrible" and "loathsome"; the laboratory as the torture-chamber; and the investigator as a cruel, curious, meddler, even charging him with commercialism.

Special legislation is not needed, for if vivisection is unnecessarily cruel, the present laws which govern the prevention of cruelty to animals will cover every point. With regard to the demand for the "Open Door" this is uncalled for since to any honest, fair-minded person there is no closed door.

If every physician in New York State would improve his every opportunity to express himself firmly on this subject and would take pains to *make* an opportunity to express the attitude of the profession on this subject to his personal friends who are among the law makers, the task of the Legislative Committee of the State Society would be easy. *Public sentiment* is in reality the law of the land and the Anti-Vivisectionists realize this fact in their appeal for support which appears on all their literature and is as follows: "The New York Anti-Vivisection Society appeals for encouragement to all who have at heart the suppression of these cruelties, the advancement

of true science and the moral and physical safeguarding of the race. Will you not contribute financial and moral support to aid us in our work? Will you not make it a specific personal duty to interest your friends in order to arouse public sentiment as widely as possible and to secure memberships? Donations in any amount welcome."

Think of asking "moral support" for a society which places the lives of a few rabbits and a less number of monkeys more sacred than 500 out of every 1,000 children attacked by cerebrospinal meningitis.

One of their strongest appeals is for the "innocent, faithful friend of man" the dog. With comparatively few exceptions this animal is better described as a public menace. Out of 7,000 stray dogs captured by the Board of Health in New York City in one month recently, only 2 per cent. were claimed or wanted by anyone.

We should remember that pain is a subjective special sense and is chiefly a human attribute. It is natural for us when witnessing distress in animals to interpret their feelings in terms of our own sensations, but it is well known that lower animals are free from appreciation of pain as we understand it. A horse with a broken leg will hobble along on three legs and continue to eat grass by the roadside. Small animals after being operated upon finish their interrupted meal as though nothing had happened.

Dr. Keene,<sup>3</sup> in his splendid popular article on this subject says of the Anti-Vivisectionists: "What have the foes of research done for humanity? Called meetings, called the friends of research many bad names, and spread many false and misleading statements. Not one disease has been abolished, not one has had its mortality lessened, not a single life has been saved by anything they have done. On the contrary, had they had their way these hideous diseases would still be stalking through the world, slaying young and old right and left—and the Anti-Vivisectionists would be charged with this cruel result."

*Discussion by Hon. George H. Witter, M.D., of Wellsville, N. Y.*

During the last two sessions of the State Legislature it was my privilege to witness much of the activity as well as much of the unreasonableness of the Anti-Vivisection Society. And I want to say to you, members of this society and to the medical profession, that the activity of the anti-vivisectionists is equaled only by the inactivity of the medical profession generally in relation to the subject under discussion. During the last session of the legislature when the committee by whom this bill regulating the practice of vivisection was to be considered gave a hearing, there were a dozen ladies and gentlemen present

in support of the bill and their cause represented before the committee by a well paid lawyer, much zeal and interest being manifested.

In opposition to this bill appeared Simon Flexner and two other doctors whose statements were made in a plain unvarnished fashion and the result was that the "antis" did not get a look in.

But suppose that these people profit by the experience of the osteopaths and secure the services of a Mr. Littleton to present their case at court, few men, not even legislators, can listen, unmoved, to the language and eloquence of such a man and the result might easily be different. I want to warn you that there is much danger in this state of lethargy which prevails in our profession over this and kindred subjects. You all remember what happened in the case of optometry as well as in osteopathy. A strong fight is being waged against compulsory vaccination and some of the ablest men in the state are there to plead for it, and they picture in a most vivid manner the horrors of the results of vaccination. These people belong to the same general class, different groups, working different specialties.

We must remember that not only with the chief executive but among the two hundred and one legislators, as has been exemplified on at least two occasions, there is a strong bond of sympathy with these "antis." It is pretty generally agreed that there is a master mind in the executive chair, but the medical profession, if it is not suffering from paresis, must realize that it has been pretty hard hit. It can at least bear witness that the race track gambling is not the only calling which has been touched by the hand of a superb strategist. We must remember that the members of the State Legislature come from the various sections of the state and from various occupations; that they are not different from your neighbors and mine. Each one of us is fully aware of the prevalence of disapproval and severe reprehension for the medical profession in almost every community. We are, in a sense, up against it from all points of the compass. To my mind there is just as much reason in these free criticisms of the medical profession as there is in the too prevalent and flagrant censure of the bosses that is being uttered from the platform and heralded by the press throughout the country.

It is astonishing the amount of sentiment for and sympathy with Christian Science, Spiritualism, anti-vaccination and anti-vivisection, especially the idea of legal curtailment and supervision to be found among the members of the State Legislature.

That vivisection and animal experimentation have contributed to the advancement of all the biologic sciences and must be depended upon as our chief ally in the progress of all practical medicine and surgery has been fully demonstrated by Dr. Armstrong in his admirable paper.

<sup>3</sup> W. W. Keene, "What Vivisection has Done for Humanity," *Ladies' Home Journal* for April, 1910.

This statement being true and the various conditions existing as they do, the question for us to settle is how may we, the medical profession, best protect the general public.

I would suggest first that the subject of vivisection and animal experimentation be given a prominent place on every program of every medical society meeting from now until every medical practitioner in the state becomes educated along this line and so thoroughly aroused that he will take a personal interest in this subject.

Then, whenever pernicious legislation is invited; when bills are introduced the enactment of which into law would be harmful to the general public and in which the medical profession is especially interested, I would have every physician in the state write to both his Member of Assembly and Senator urging his active opposition to such measure.

The only safe plan is to prevent absolutely any sort of legislation on this subject, for if they are granted ever so small a favor they will come back for more.

### PATHOLOGIC FINDINGS IN THE RIGHT ILIAC FOSSA.\*

By J. P. CREVELING, M.D.,  
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THE frequency with which we encounter disease occurring in the right iliac fossa renders it one of the most important sites within the abdomen, both to the physician and surgeon. While the organs contained are but few in number, their anatomic construction and position expose them to continued functional embarrassment. Nature was apparently mindful of the surgeon when she hung the cæcum and the appendix so opposed to gravity force, and modern civilization and mode of living, by their irregularities and pernicious customs, have added what nature lacked to make this locality, one of the most prolific fields for disease and disorder within the organism.

With the typical troubles, we sometimes find oddities that influence our course and means applied, as well as the final result of our efforts.

In this paper I wish to very briefly mention some of the more unusual conditions found by me upon opening the abdomen in this region and, also to remark upon their obscure features from a diagnostic standpoint, and possibly treatment and termination.

We have all learned to make a fairly correct diagnosis in the simple and uncomplicated troubles of the cæcum and appendix, especially when they present their normal or characteristic symptoms, and yet even then we may be misled as to the real nature and extent of the lesion going on within the cavity.

In illustration of this statement, I abstractly relate the following case. In February, 1891, a young man 25 years of age came to my office to consult me for pain in the right iliac fossa, stating it had troubled him for a month or two; that it occurred more or less in paroxysms during the earlier history, but for the last two weeks or more had been quite constant and increasing, so much so that he was no longer able to continue his occupation.

There had been some nausea and he had felt chilly a few times but no distinct shake, neither had there been diarrhœa. His face was flushed, temperature 101, pulse 100. The abdomen was slightly distended, the rectus muscle tense, much pain to pressure over the fossa, and a large mass could be outlined occupying the fossal space, which was diagnosed an appendicular abscess.

On the following day the abdomen was opened and the mass found to be a tubercular accumulation, involving the cæcum, appendix and omentum, and well filling the cavity of the fossa. As much was removed as thought prudent and the surrounding adhesions broken up as far as possible and the wound closed. The appendix was not seen during the operation.

He made a good recovery and there has been no return of the disease. From the defined location of the disease, there can be but little doubt that the appendix or meso-appendix was the primary deposit of the tubercle.

This, with one other, are the only two cases that have come under my observation, where it was clear that either of these structures were the seat of the first deposit. In the second case the disease was confined to the appendix and meso-appendix. In this instance the symptoms were those of subacute appendicitis.

I, therefore, infer that it is not a favorite spot for the beginning of this process, but the fact that it does so occur should not be forgotten.

Another case, though a little different in character, was that of a woman, 25 years old, of a most pronounced tubercular family history. For more than a year I had watched a growth a little above and to the left of the umbilicus, gradually increase in size, but had deferred operation until one day she contracted an acute attack of appendicitis.

Appendectomy was done and during the operation the finger was passed round the tumor and it was brought into the wound. As much as circumstances would permit was removed and the remaining portion carefully manipulated and pushed back into the cavity of the abdomen.

It took about three months for the growth to entirely disappear, but she remains well now, some six years after. No bacilli could be found in the appendix, but were demonstrated in the portion of omentum removed.

Seven years ago a very unique case was admitted to the hospital for operation. It was

\* Read at the annual meeting of the Seventh District Branch, at Geneva, September 15, 1910.

a boy, 15 years old, complaining of pain in the right iliac fossa, without tenderness to pressure, no nausea, no rigidity of muscle and, in fact, without any marked indication of trouble except the continued pain.

He was put to bed for observation as operative interference was thought unnecessary. The pain continued however, and in the second day the abdomen was opened. The appendix was found congested but no active inflammatory process was present, but an aneurysm nearly as large as a small marble, occupying about the middle of the appendicular artery was found. The walls were thin and the pulsations very distinct. How that little artery could become so distended without rupture remains a conundrum to me.

There was quite a sharp bend in the artery, just distal to the miniature aneurysm. The condition is of much interest and may be a cue to the explanation of some of the obscure cases that terminate in sudden collapse with distinct abdominal indications.

It will be remembered that the branches of the mesenteric arteries, because of their distribution, are subject to the changes in position of the more or less loosely suspended viscera and, possibly to temporary obstruction and torsion, conditions most unfavorable for receiving the blood pressure.

Diverticulum of the cæcum is sufficiently rare to merit the brief review of a case. Three years ago the present month, I called to see a woman 68 years old who said she had a bunch in her right side; that she had noticed it slowly getting larger and becoming more painful; that during the time she had moderate constipation but laxatives had been used so she had suffered no special inconvenience; otherwise had been well.

For the past few days the pain and soreness had increased to a degree to confine her in bed.

She was the exact type of a woman in whom you would suspect malignancy. After looking her over fairly carefully I had more than a half suspicion she had a carcinoma of the cæcum. The history of development, pain, soreness, age, physical appearance, all argued for a malignant growth.

She was put upon a mild treatment of cathartics and massage and in about three weeks the trouble had disappeared. As a converse to this case, I remember a woman who presented all the symptoms of an attack of appendicitis having run some five or six days, with pain, nausea, tumor, tenderness and muscular rigidity.

No history antedating the few days could be obtained, but when the cavity was explored a carcinoma of the end of the cæcum was discovered. The growth was nearly as large as an ordinary orange, yet she declared it had not in any way inconvenienced her.

On September 14, 1905, I was asked to see a man 35 years old preparatory to appendectomy.

He stated, that, for ten or twelve years past he had had attacks of pain in the right iliac fossa, lasting from a few minutes to a day or two. Some eight or nine years ago he had an attack much like the one present, only not quite as severe.

The one present began on the first day of September, and hence, had existed fourteen days. He had had nausea much of the time, pain sharp and severe at times, and at others none, the temperature had not been above 99 or sub-normal, the pulse had ranged from 90 to 100; no marked constipation; no chill and only moderate tympany. On examination the tenderness to pressure was not very acute, slight muscular rigidity, tympanitis moderate; upon palpation a tumor occupying most of the fossa could be indistinctly outlined.

The urine tested negatively, but the facial appearance and general nervous manifestations were those of a severe abdominal lesion. He was removed to the hospital and an incision made over the most prominent part of the tumor.

Nearly a pint of very offensive fluid escaped. The cavity was mopped out clean and explored by the finger. The cæcum and appendix were found to constitute a part of the upper boundary of the cavity and while inflamed, it was evident that neither was the cause of the disease.

It was noticed that some fluid accumulated in the abscess cavity while the exploration was being done and that it had something of the odor of urine, and on further investigation, a small cylinder like tube was found protruding from the posterior wall of the cavity.

This proved to be the end of the right ureter and was about one-fourth of an inch in length.

The wound was drained and he allowed three weeks for repair, when nephrectomy was performed. Both wounds healed rapidly and he made a good recovery. The cause of the lesion of the ureter is merely a conjecture.

It is seen by the brief report given that the history, symptoms and location, closely tally with those of certain forms of simple appendicitis.

That disease occurring within the fossa may, by reflection mimic that beyond its borders and lead to error in diagnostication, is well shown by the following case. A year ago next month a middle aged man was admitted to the hospital for an operation for gall stones.

He had been examined by two capable men who had taken into consideration the possibilities of the iliac fossa. He had chronic indigestion, nausea, frequent attacks of pain and soreness under the right ninth costal cartilage, without jaundice and some shifting pains in the right back above the eighth rib. He complained of nothing below this line.

The abdomen was opened and the gall bladder found free of calculi, but an elongated and swollen appendix reaching well up on the anterior



surface of the colon was removed and all trouble ceased.

I presume the indications of gall bladder involvement were due to position of the appendix upon the colon, as disease of that organ especially at the hepatic flexure may very closely simulate cystic disturbance.

In February, 1908, while in attendance at the house, a boy four years old complained of pain in the abdomen but, not sufficiently severe to interrupt his play. Little attention was shown him except to give a laxative. On the next day, he was still about the house at play but said he had more pain.

The laxative given had produced a good stool but afforded no relief. The pain seemed quite general throughout the abdomen, was not severe, was fairly constant with an occasional sharp twinge which would send him to the couch in a folded up condition for a few minutes.

The pulse or temperature had not been disturbed and he had eaten as usual. There was no tympany or apparent tenderness about the abdomen. By the third day the pain was much increased and tenderness extended over the whole appendicular zone, and also a hardness could be defined. The constitutional symptoms were well marked.

The abdomen was opened and in the fossa lay an invaginated portion of ileum some three inches long. Three inches of the anterior portion had slipped into a corresponding length of the distal part. The bowel was released, the invaginated portion bleeding quite freely from the adhesions that had taken place.

The traction required to separate the two parts of bowel was considerable, and the discoloration well marked. While such a case is not likely to occur very often, the possibility should be remembered.

Old adhesions the result of inflammatory process long since faded away, by their symptomatology may closely resemble chronic disease within the fossa. One such case I have operated upon within the past few months and the case also fairly well answers the question I have seen recently asked; does the appendix ever become absorbed?

This woman stated that, twenty years ago or more she was confined in bed a number of months by what was called right ovaritis, that since that time she had had frequent attacks of pain in that region and much of the time an uncomfortable dragging feeling.

In March of the present year, the pain became more severe and constant, so the fossa was opened for exploration. The stump of the appendix was found to be about one inch long and tapered down to a fine point, while of the remaining three inches there was nothing left but the peritoneal coat; the mucous and muscular coats had entirely disappeared.

The peritoneal end was attached to the upper

surface of the broad ligament which, I presume, was the cause of the dragging pain. The ovary was in quite a normal condition. The original disease was undoubtedly appendicitis.

I am conscious that this paper should not be extended, but would like to give a skeleton report of one more case because of the irregularities discovered. It was an acute attack of appendicitis in a woman 53 years old. The disease developed abruptly some ten days previous to operation. Her general condition was much below par.

On cutting into the abdomen, the cæcum was found well distended by gas and empty; on the posterior surface, extending high up the colon, was a flattened roll of tissue, evidently the result of the inflammatory process with some omentum intermingled, the mass being nearly an inch in thickness and from two to two and one-half inches wide.

In appearance it resembled muscle structure with an excess of fatty material. The section taken for microscopic examination was lost. On the internal lateral surface of the cæcum was a diverticulum an inch or an inch and a half in diameter and about the same in length.

The muscular wall of the bowel had separated so that the wall of the protruding part was composed of the mucous and peritoneal coats only and was very thin. The appendix was next sought and found to be an inch or more in diameter at the base, of funnel shape to about the beginning of the middle third, while the remaining two-thirds was a normal size, excluding the swelling.

Instead of a single stitch closing the orifice of the stump it required a row an inch long for that purpose. This shape was most favorable for concretions entering the lumen of the organ. The widened condition at the base was not caused by dilatation but was a congenital defect.

A symptomatic peculiarity was the most severe pain was confined to the anterior of the right leg, extending to near the knee and upward to near the right scapula, but the tenderness to pressure was over the site of the appendix.

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## BLOOD PRESSURE—ITS SIGNIFICANCE AND TREATMENT.\*

By JAMES K. KING, M.D.,  
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**N**O department of human knowledge has rivaled in its advancement within the past two decades the wonderful discoveries and attainments in the science of medicine and surgery. You are all familiar with them in the various branches, but it seems to me that none are of greater value to the physician, the surgeon and the patient, than our present knowledge of

\* Read at the meeting of the Sixth District Branch, at Cortland, N. Y., September 27, 1910.

the variations in blood pressure, the methods of detecting them, their significance and the means of correcting them. Most of this is a heritage of the last ten years. There is much to be learned yet about arterial and venous blood pressure, but we already have a good, practical, working knowledge and it is within the reach of all physicians. Some of the more complicated methods of diagnosis employed in our hospitals are not so accessible.

The frequency with which blood pressure varies from the normal standards, the light it throws on so many obscure conditions, the certainty with which these variations aid us in arriving at a correct diagnosis, and the assistance they give us in successful treatment is without a peer in the whole realm of practical medicine.

Let us now consider the various instruments for recording blood pressure. We will consider those that concern the general practitioner rather than the specialist. It is not always possible for the general practitioner to have the more expensive, complicated and delicate instruments at hand. Our hospitals can have and use successfully machines like the radiograph, the electrocardiograph, Erlanger's and Recklinghausen's instruments, but the practitioner will probably have to be content with the Riva Rocci, or Cook's modification of it, or more likely Janeway's or Stanton's sphygmomanometer. Some may prefer Gaertner's tonometer which can be very conveniently used.

These are all good instruments. Janeway's is a very practical and useful machine and can be folded up and put into comparatively small space. Stanton's is a better instrument where one wishes to record the minimal as well as the maximal pressure, and the man who can have two blood pressure machines would do well to have the small instrument of Stein. For the busy man, Stein's sphygmometer is a very valuable instrument. It is made by Dressler in New York. It can always be carried in the coat pocket and, while the readings are higher than those of the Janeway, Stanton or Riva Rocci, they are quite accurate. By having this instrument always with one, it will often help to throw light on a doubtful case and aid in the differential diagnosis in obscure cases. It will always be a valuable addition to the physician's and surgeon's outfit, no matter how many larger instruments he may have. It is quite easy to learn the use of this instrument; there are only three points necessary to remember. 1. That the readings are higher than the Janeway, they average from ten to twenty degrees higher according to the age. 2. It is quite necessary to remember to relax the muscles of the thumb so as to exert no personal pressure. 3. It is important to forget the circulation in the operator's thumb. *These soon mastered*, a comparative table is with the sphygmometer.

The larger instrument, as you know, obliterate

the radial artery by compression of the brachial. The Stein instrument makes pressure on the thumb and this makes direct pressure on the radial artery. It is by far the least complicated and quickest method of finding not only the maximal, but especially the minimal pressure.

It is useful in eliminating the mental factor, as it is small and excites no special fear or anxiety. We all know how far the mental factor enters into the pulse rate and pressure reading. Having a patient lie down often causes excitement, and increases the pulse rate and arterial tension.

This little instrument is very useful in finding the blood pressure in children. They are easily frightened by the presence of a large instrument and putting the cuff on the arm they often become so much disturbed that it is impossible to tell what their pressure is. With this instrument we have no trouble, and remembering that in children from one to five the normal blood pressure is about 70, we can readily see the value of noting any elevation.

In finding the minimal pressure with the Janeway, Riva Rocci or Stanton instrument some practice is required to obtain accuracy. The Stanton is the most certain method. With the Janeway instrument, the larger column of mercury gives larger oscillations, and when these are at the maximal, then the minimal pressure is registered.

In following the palpation method, after obliterating the radial pulse and noting the maximal pressure, the air pressure is lowered until the pulse returns to normal in volume, and then we have the minimal. The chief difficulty with this method is to obtain an accurate reading. The operator, noting the pulse with one hand, slips off the pressure bulb tube with the other and turns the stop cock slowly until the full pulse returns, but it is very easy to pass the exact point of fulness. A little alteration I have made in this method is very helpful in the technique. By putting in the rubber tube, a little way from the stop cock, a cut-off with a side opening, the air can be let off to about the proper pressure and then the side opening closed. The pressure on the bulb can now be increased or diminished, raising or lowering the column of mercury, until we are positive that the pulse is at the fullest. This will give us the exact minimal pressure. You can do this with the Stanton instrument, but it is much more expensive.

The auscultation method is the most delicate and accurate. The instruments of Stanton, Recklinghausen and Erlanger are the best suited for this purpose. The stethoscope is placed over the brachial artery at the bend of the elbow and by raising and lowering the pressure, the maximal and minimal are read.

In normal conditions blood pressure varies much according to age and under different conditions of body and mind. After meals, during

or after exercise, with any change of posture, or with any mental excitement, there is a great variation. To obtain an accurate estimate of blood pressure, the instrument should be used, (a) at the same time of the day, (b) at the same distance from the meal selected, (c) in the same relation to exercise, (d) always in the same posture, (e) under the same mental conditions.

The sitting posture is usually preferable as it is easier to take frequent readings both at home and at the office. If the patient is ill enough to be in bed, of course, the readings should be taken lying down. When the patient is able to get up, the pressure should be taken before and after rising to note the difference for future readings.

Under normal conditions, the maximal pressure ranges in adults from 115 to 140; the minimal pressure from 80 to 100. In children it is much lower. Several authorities give figures lower than these. After middle life the pressure is higher. In man the blood pressure ranges from 5 to 10 degrees higher than in woman.

In pathologic conditions, the blood pressure ranges from 70 to 300, seldom outside of these limits. It becomes the physician's duty as well as his privilege, to discover the cause, or causes, for there may be several, for this variation from the normal limits.

We hear a great deal about high blood pressure and very little about low blood pressure. I want to emphasize, right here, the great importance of low blood pressure as an aid to diagnosis and assistance in treatment. I remember recently a lady of 48, who had been treated for a long time for hysteria. Her blood pressure was, maximal, 87; minimal, 58. This was purely a neurasthenic state and not hysteria and under suitable treatment the blood pressure gradually rose to maximal, 136; minimal, 98, with a good recovery. Neurasthenics may have high or low arterial tension. Hysteria is generally associated with higher tension.

In pathologic conditions we often find a greater difference between the maximal and minimal pressure. In health this difference varies from 30 to 50 degrees. In disease the range is often much greater. It is both interesting and encouraging to observe, under treatment, the difference between the two approaching nearer the normal relation of maximal and minimal. The study of blood pressure in diseased conditions of the body, and its treatment, is of vast importance to the patient and physician, but the early detection of any variation and correction of any marked divergence from the normal limit is of far greater importance. This is an instance where an ounce of prevention is worth a pound of cure. By this method of investigation we can detect arteriosclerosis in the early stages and are able in a great measure to prevent its progress, especially in middle life. It often reveals to us in the very early stages, especially associated with acute rheumatism,

abnormal conditions of the heart, and permits us to correct them. In cases where cerebral hemorrhage is threatened or where there has been one hemorrhage and the second is feared, we cannot overestimate the value of measuring the blood pressure. By keeping the pressure down there is very little danger from impending cerebral hemorrhage or of a second rupture of the blood vessel.

These instruments reveal to us very early the approach of interstitial nephritis and give us a chance to employ therapeutics successfully and to regulate the habits and diet of the patient. Long before any methods known to medical science can detect a lesion in the kidneys or sclerotic arterioles, the rise in blood pressure, when not due to some other cause, gives us timely and certain warning.

We must bear in mind, however, that there are exceptions. In tubercular kidneys, the blood pressure is lower instead of higher and at once arouses our suspicions of a tubercular focus.

In certain heart troubles, there are counterbalancing conditions. We can and do find cases of advanced arteriosclerosis with aortic obstruction presenting a hypotension. In many neurasthenic conditions we may find a low blood pressure. The insurance examiner finds these instruments for estimating blood pressure a great aid in computing longevity. The surgeon is abundantly rewarded for his careful observation of blood pressure; in relation to surgical procedures—as in the use of anesthetics—in paracentesis, indicating how much and how rapidly the fluid is to be withdrawn; also it indicates in many cases when it is wise to operate and when to delay.

In acute troubles we cannot overestimate the value of blood pressure. The two factors in hypertension are:

*First.*—Increased peripheral resistance.

*Second.*—Augmented propulsion of the heart.

Increased resistance is often due to toxic states and this causes increased heart work and extra pressure.

These instruments aid us greatly in the early and uncertain stages of ptomaine poisoning.

In many nervous diseases they often indicate very clearly nerve excitement or depression or exhaustion.

There are several drugs that raise blood pressure and these should always be kept in mind when there is hypertension.

Adrenalin and digitalis not only raise tension but scientific experiments seem to show very clearly that they induce arteriosclerosis of the media muscle cells and elastic fibers (Klotz. *British Medical Journal*, Dec. 22, '06), and they should be used with great caution in cases of increased tension.

Tea, coffee, strychnia, caffeine, tobacco and alcohol, all these drugs tend to increase blood

pressure, and we should bear this in mind in practice.

*Treatment.*—It is much easier to raise low tension than to lower high tension. Generally in cases of low tension if we build up wasted tissue and restore the nervous system to normal the blood pressure will be corrected at the same time.

The vital question is: What can we do to reduce increased blood pressure? We must always remember that it is often compensatory and all the factors must be taken into careful consideration before we begin our treatment. Nature attempts to balance resistance, as for instance if there is obstruction in the kidneys, nature attempts to balance this resistance with increased heart force and necessarily increased blood pressure.

The means at our command for reducing pressure are many:

*First.*—We have the various nitrites.

*Second.*—We have the iodides of soda and potassium.

*Third.*—We have calomel as a valuable agent.

*Fourth.*—We have aconite and bromide.

*Fifth.*—We have the high frequency form of electricity.

*Sixth.*—We have the Nauheim baths.

*Seventh.*—Hot packs and hot baths.

*Eighth.*—We have the regulation of diet.

*Ninth.*—We have rest.

The action of drugs at best is only temporary. The most reliable and permanent means at our command are baths, diet and rest.

With all these various means at our command it is most important that we select those best adapted to the treatment of each case.

In all cases, until we are sure of our method of procedure, the blood pressure should always be taken before and after each treatment when possible. We must remember, however, that one swallow does not make a summer, and we will often find that after an application of the high-frequency current, or a Nauheim bath, or a hot bath or pack, the pressure is not lower. Some state of mind or of digestion has interfered.

The general downward trend is what we must look for and expect.

## EXPERIENCES WITH ECLAMPSIA.\*

By M. P. MESSINGER, M.D.,  
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IT has been said that the medical student learns surgery which he does not practice and practices obstetrics which he does not learn. Certain it is that in no other department of medical practice is he so often confronted by conditions where he must depend on himself alone, and where one life and often two depends on his doing the right thing promptly.

Puerperal eclampsia is as yet a condition and

not a theory. Its causation is still not positively determined. This we do know that it is caused by deficient excretion of the poisons of metabolism. The prevention consists in keeping the excretory organs, especially the kidneys, up to their work. We know that in the great majority of cases imperfect elimination is attended by albumen and casts in the urine so the best clinical guide is repeated urinary examinations. My own five cases all occurred in women that I did not know I was to attend until I was called to the woman in labor.

We must constantly advocate the care of pregnant women during gestation by their physicians, and in event of albuminuria, severe dyspepsia, œdema, severe headaches or evidence of defective elimination we must regulate the diet limiting the amount of nitrogenous food and stimulate elimination by laxatives and using hot air baths if needed. However, when we are called to a case we did not see during pregnancy and find labor just begun the woman complaining of severe headache, seemingly dull and somewhat confused we must be on guard. We often enter a house and find a woman with her mouth filled with bloody froth, her eyelids twitching, her arms and forearms jerking rapidly across the front of her chest, her mouth drawn forcibly to one side, her face livid and purple, respiration suspended, profoundly comatose, relatives standing around and crying and wringing their hands and imploring us to do something. After a few seconds the convulsion ceases, breathing begins again, the face loses its purple color, remaining, however, pale and swollen. The stupor may pass off and consciousness be regained but usually it does not, as another fit like the first follows after a varying interval according to the severity of the case. Over one hundred convulsions have occurred followed by recovery.

On examination of the patient we find a tense, bounding, very rapid pulse with some fever. We find labor to have progressed to a variable extent and on drawing some urine we find it loaded with albumen, one case being solid on boiling in a spoon over a lamp.

In my cases I have resorted to immediate delivery using chloroform to control the convulsions and bimanual dilatation of the cervix, followed by forceps with a hypodermic of one-fourth gr. morphine in my first cases and a hypo syringe full of Norwood's tincture of veratrum viride in my two last cases. In these cases I gave twenty-five minims at first followed in one-half hour by five drops and again by five drops more. Copious frothy mucus being expelled from the respiratory tract with some œdema of the lungs, the pulse rate coming down to sixty and becoming soft and compressible and the convulsions stopping.

In an article by Barton, of Washington, D. C., published in the *Journal A. M. A.*, of July 23, 1910, the use of veratrum viride in puerperal

\* Read at the annual meeting of the Eighth District Branch, at Buffalo, September 27, 1910.

convulsions is included among "Pharmacologic Fetishisms." I can see no more reason for putting it there than I can the use of sodium salicylate in rheumatism as we know the action of neither remedy exactly.

I give notes of cases:

January 29, 1897, called to Kate C., 20, single, primipara, mentally not bright, found her pregnant at term and having typical eclamptic convulsions, gave morphine gr. one-fourth hypo, and bromide gr. XX and chloral gr. XX and sent for help, using chloroform to control the convulsions. When the consultant arrived we dilated the cervix and applied forceps and delivered a dead child, tearing the perineum through the rectal sphincter. The convulsions ceased with delivery, hemorrhage being very free. We closed the laceration with chromicized cat-gut and the woman regained consciousness in two or three hours when she refused to take anything and would not even be touched. She recovered promptly but the stitches did not hold and she remained torn through the sphincter. Her experience did not increase her morality as about eighteen months later she gave birth to a living child with no one else in the house and washed and dressed it herself and took it out in the garden and showed it to her mother.

January 30, 1898, called to Eva C., married, 18, primipara, found her in labor, os dilated to size of quarter, complained of severe headache, in about fifteen minutes she went to sleep and slept normally for a few minutes when her eyelids began to twitch and she had a regular eclamptic seizure. I at once gave morphine hypo gr. one-fourth, and began giving chloroform to control convulsions. As soon as I could get help we put her on a kitchen table dilated the os bimanually and applying forceps delivered a good sized boy apparently dead. We had a profuse hemorrhage with the delivery so we wrapped the boy in a blanket and put him under the stove, before the mother was entirely cared for we heard a cry under the stove and found our boy living, which he is doing yet. The mother had much headache and nausea for several days, but by using free elimination she recovered and has borne at least one child since with no trouble.

February 16, 1903, called to Emma R., 28, married, third pregnancy, called at 12.30 P. M., had had convulsions since 7 A. M., very severe, woman seven months pregnant, os size of half dollar. Put woman on table dilated os with both hands and delivered a dead child with forceps. Convulsions stopped but woman did not regain consciousness so a trained nurse was employed. The temperature went up to 106 on the third day when a curettement with a dull curette removed some shreds of membrane and the temperature came down gradually. On the sixth day she had a profuse hemorrhage when the temperature dropped to 96.

Following this, patient became conscious, temperature gradually became normal, the woman took nourishment and appeared to be doing well. The tenth day the nurse left leaving an experienced woman in charge. Two days later the kidneys stopped excreting urine and she died twelve days from the time of the first symptom.

February 19, 1906, called to Fanny C., 17, single, primipara, labor went on normally during first stage, head descended normally until the head was on the perineum she began to complain of severe headache followed by a regular eclamptic seizure. I at once gave a hypo syringe full of Norwood's tincture veratrum viride and applying forceps delivered a living girl. She had no more convulsions but had quite a little œdema of the lungs when it was necessary to raise her to a sitting posture and wipe the froth from her mouth and throat every few minutes. She recovered in a few days, the child dying of pneumonia at three months. She has since been in a house of refuge at Albion and has had no more children but is apparently perfectly well.

My last case was Mrs. R. H., 28, primipara, always well, delivered her of a dead baby at midnight, labor natural except slight tear of perineum. Mother apparently all right till 7 A. M., when I was hurriedly called and found her having typical convulsions. Urine drawn found highly albuminous. Gave at once a hypo syringe full v.v. with chloroform for the convulsions in one-half hour gave 5 m. more v.v. and in one-half hour more another 5 m. when the convulsions stopped and the woman gradually regained consciousness the albumen persisting for about two weeks but disappearing with catharsis and sweats. She recovered entirely. This was two years ago and she has since passed from observation.

This gives a maternal mortality of 20 per cent. Of the children only one is now living. If I were called to a case of eclampsia now I should give hypo 25 m. Tr. veratrum viride and repeat every half hour in 5 m. doses according to the tension and frequency of the pulse and the amount of pulmonary œdema using chloroform to control the convulsions. If they continued I have been very much impressed with the results obtained by renal decapsulation and should try that if nothing else availed.

## DIAGNOSIS AND TREATMENT OF ANTERIOR-POLIOMYELITIS.\*

By C. F. CLOWE, M.D.,  
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**B**EFORE beginning the discussion of this subject assigned to me I should like to make an explanation by way of an apology for the obvious defects that will be perceived in the paper.

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The profession to-day is in a position in regard to this disease that perhaps does not prevail in any other.

First as to diagnosis, while it is comparatively easy in the stage when the typical paralysis has already developed still we have not yet the early symptoms arranged into so definite a clinical picture that it is of value to us in the early treatment of the disease.

Again in the treatment, almost the same holds good. Our ideas in regard to the disease have so changed in the last year or two that the accepted treatment of former years has to be largely abandoned.

And meantime our new knowledge of the disease has not as yet led to any treatment efficacious in its early days.

An attack of infantile paralysis is as a rule not attended by prodromata or if it is they are so vague as to be unrecognized. The disease begins abruptly with some fever. The temperature is usually slightly higher as the child is older. Many cases suffer digestive disturbances, vomiting and diarrhoea and in some cases headache. There is also at times pain in the back and limbs, especially in the limb to be the seat of the paralysis. All these general symptoms vary in intensity with the temperature; the younger the patient and the higher the temperature the more likelihood of convulsions.

After a few days, usually two or three, sometimes as much as seven, the temperature and other symptoms subside and then only in most instances is the true nature of the affection discovered.

If searched for, however, the paralysis may often be found in the early stage of the disease. When it first appears it commonly affects the whole limb or side. Later a large part of this clears away leaving a residual paralysis limited to a limb or more often a single group of muscles. These groups are invariably muscles of associated function. The lower limbs are more frequently affected than the upper. Hemiplegia is very rare.

A large number of cases occur with even more sudden onset, the child awakening in the morning with a paralysis, with no history of illness of any kind. There is no sensory disturbance, the bladder and rectum are not involved, and the brain is clear.

Within two or three weeks the atrophy begins to be noticed and proceeds very rapidly. The limb is apt to be cyanosed and is cold to the touch. The deep reflexes are lost or weakened. To the faradic current the affected muscles respond weakly at first and afterwards not at all. Soon after this the reaction of degeneration sets in. Within a few weeks the various deformities due to contracture appear.

This disease has been long known and studied and yet the common history is that it is not recognized until the diagnostic paralyzes appear and in too many instances not even then.

In recent years much valuable work has been done and articles have appeared notably by Sheel, Collins, Harbitz, Romeiser, Starr, Holt and others which have made it possible with a little time and study to make the diagnosis early. Of course, this is extremely important for if we are to hope to check or modify this serious disease it must be in its inception.

The first requisite if this desirable result is to be accomplished is that the average physician become as familiar with the early symptomatology of the disease as he is with the sequelæ. The next requisite that he be willing to give a little time and patience to the study of his cases.

The first thing that strikes the observer is that there is so seldom anything leading up to the disease. In a few cases a history of an injury, an undue exertion or an exposure may be obtained but it usually comes without any warning.

Most of the cases are seen in the first ten years of life and by far the greater number in the second year of life. It appears more often in boys and in the summer months even in a tropical climate. The next fact of interest is that the somatic symptoms are so few and relatively light. So that the phenomena of the disease may be nearly all described under the nervous symptoms. The motor symptoms have been analyzed in another connection but some facts will bear repeating here, first that the legs are more commonly affected, generally one only; that bulbar symptoms are often associated, that flexor groups are more seldom attacked than extensors, that occasionally, especially in epidemics, cases of Landry's or ascending paralysis are seen.

A point that needs careful investigation is this. What is the time of the appearance of the paralysis? It is usually said to be after three or four days. What about the cases where the child goes to bed perfectly well and awakes paralyzed? Is it not very likely that if the child were carefully examined in the cases with a severe onset, that the paralysis would be found to be present at once?

We find in the report of epidemics the statement often made that the child was so sick that there was no examination made until he was taken out of bed on signs of recovery and then it was first noted that he was unable to stand.

Collins in a recent article is strongly of the opinion that the disease is communicable and is rapidly becoming more infectious. Certainly the severe epidemics that occurred in 1907 and since that time in this country have placed a new aspect on conditions in this disease. The great epidemics have all been reported during the past twenty years and it seems almost sure if others had occurred previously so striking a condition could not have failed of recognition.

Wickman has shown well the varied forms it may take and we can see that it may have hidden

in many cases under the name of rheumatism, neuritis, etc.

There seems little reasonable doubt, however, that it is a new disease and largely epidemic. Since it has been made reportable we will be much better able to observe its history.

A remarkable thing about the disease is the fact that it, as all epidemics, terminates abruptly with cool weather. This is a fact that may be found to have a bearing on the history of its cause.

Wickham's observation, in Norway, and that of Dr. Geo. P. Shidler, of York, Nebraska, seem to show conclusively that it is not only contagious but can be carried.

The mortality rate varies in different epidemics from 5 to 20 per cent.

Holt thinks that the disease is spreading rapidly throughout the world and that as indicated by the various epidemics the severity and its power of communicability is increasing. It is advisable that at least in epidemics quarantine be established. At times its carriage and communication by a third party seems clear.

Dr. Lovett, of Boston, is of the opinion that the medical profession is up to the task of making a new literature in this disease. Reported outbreaks only cover the past thirty years and most of these in the last few years. The United States shows more than half the cases. In the epidemic in Boston one half of the children had been wading or swimming in contaminated water.

Conclusion. When during the summer months a baby or young child is seized with a moderate fever, vomiting, constipation or diarrhoea, pain in limbs or back, some stiffness of the spine sweating and possibly some cerebral symptoms the physician's attention should always be early directed towards poliomyelitis.

In the diagnosis of this disease we must constantly bear in mind that it is an infection of the cerebro-spinal axis and its pia, with a great predilection for the gray matter of the anterior part of the cord. The symptoms that result vary correspondingly as it attacks one region or another and correspondingly in degree.

It has been recently suggested by Flexner that observing the frequency of the early leptomeningitis that if the spinal fluid be withdrawn very early it may show changes in the lymphocytes sufficient to make a diagnosis before damage has been done to the gray matter which is irreparable and then at that time we can with confidence use our formalin or the serum we hope for.

Of interest to note may be the analysis of 29 cases which occurred in this city in the summer of 1907 and the histories of which have been collected by myself. This epidemic gives us an insight into the severe character of this disease in its epidemic form. We notice first the large number of severe cases. Two were fatal. Of the remaining number of 27, 10 were character-

ized by the attending physicians as very sick, as, likely to die, or were first diagnosed as cases of meningitis. Only 5 of the 29 made a complete recovery, one remains nearly totally paralyzed, 2 in arm and leg, 1 in one arm, 11 in one leg and 6 in both legs. Recovery is more complete if upper extremities are affected than in lower. Of the 29 cases 19 were between 1 and 3 years of age.

A resumé of 18 cases which have been reported to the Health Department this summer shows most conclusively the seriousness of the disease as we now know it; of the 18, 5 died, 2 adults and 3 children. Three died with ascending paralysis and 2 from direct attack on the medulla. Of the 18, 3 cases are in adults, one recovering after a nearly complete paralysis.

The remaining cases with one exception, aged 12, are under 6 years of age.

We are struck with the similarity of the early symptoms. Practically all had fever from 101 to 104, 6 were attacked with vomiting, and in 4 it was accompanied with diarrhoea.

Ten complained of pain and tenderness in affected limbs. In many this has been very severe. Three of the more serious cases were delirious. In 10 the paralysis appeared on the second to fourth day.

Another fact of interest is the location of the paralysis. In 13, it affecting the legs, and where the child recovers it is generally with crippled leg, more often the left.

Of interest also is the fact that 3 of the most severe cases were treated with urotropin, and in these the recovery was more complete than was anticipated.

The history of these cases shows that probably less than 5 per cent. are correctly interpreted in the early or febrile stage. However, later, a review of this stage becomes important, especially in the differential diagnosis between meningitis and the cerebral palsies of childhood.

Sporadic cases of poliomyelitis are rarely accompanied by pain. In some epidemics, however, there occurs a class of cases of the meningeal type which have much pain. Some cases are ushered in by a convulsion or two, but seldom more. There is almost never any mental impairment. In cerebral palsies, on the other hand, convulsions are frequent and persistent. Mental involvement common.

Also the types of the paralyzes in the two are opposite. In poliomyelitis the paralyzes are flacid, the reflexes are lost, the muscles affected are functionally associated, and a monoplegia is the rule.

In the cerebral palsies the paralysis is spastic in type, the reflexes are exaggerated, there is no wasting, although arrest of development may result; the paralysis is of muscles anatomically associated, the distribution is apt to be hemiplegic. Monoplegia is rare. Finally there are

no electrical changes associated with cerebral palsies.

From other types of myelitis infantile paralysis is to be distinguished by the absence in it of sensory symptoms, of sphincter involvement, of trophic disturbances and of spastic and semi-spastic disturbances.

Birth palsies and traumatic neuritis are very hard to distinguish from this disease.

History as to onset and progress serves to distinguish poliomyelitis from the pure muscular atrophies.

It may be well to mention or describe some of the conditions for which this disease has or may be mistaken.

1. *Infantile Scurvy* occurs at the same period of life and may present similar symptoms, but a careful examination should show in it that the paralysis is only seeming, a result of painful motion, and should reveal the superiostial hemorrhage.

2. *Ricketts* almost the same. Differentiation even less difficult.

3. *Syphilitic Pseudo Paralysis* is accompanied by other evidence of congenital lues and examination will discover tenderness at the diaphyso-epiphyseal junctions.

4. *Rheumatism* is very rare in infancy, but may occur; careful examination shows tender joints as the cause of loss of motion, even though the child may not have evidenced pain.

5. The *gastro-intestinal infections* of summer season are to be distinguished in the first days and here is room for careful diagnosis of the utmost value as to ultimate results.

6. *Poliencephalitis* may present a difficult distinction in the early stages. Later the paralysis is seen to be different, being commonly a hemi or para plegia.

7. *Meningitis*. Here also the diagnosis is at times difficult, especially in those cases that occur at times in certain epidemics where the symptoms of cerebral irritation are marked. In any case where meningitis is suspected a lumbar puncture can do no harm and will generally serve to clear up the diagnosis.

8. *Multiple Neuritis*. This is a rare disease in early life, except as a sequel to diphtheria, but may occur. The onset is apt to be slow and painful.

9. *Muscular Dystrophies*. These all are of slow onset and course and should present no great difficulty.

*Treatment*.—Usually the febrile stage is treated symptomatically for the reason that the diagnosis is rarely made early. Here is a reason for the meagre and conflicting reports of the drug treatment of this disease. For, of course, it goes without saying, that if any specific medication is to be of use, it must be begun at the onset.

In the acute stage many rely on ergot and belladonna with the forcing of the copious drinking of water.

During the febrile stage the treatment should be much the same as for all forms of acute myelitis. First and most important is absolute rest in bed. Ice bags or counter irritants to the spine; laxatives and a fluid, bland diet.

If there is much fever some antipyretic, as for instance, phenacetine is of benefit. This also seems to relieve the pain which is often intense.

Many employ the bromides without or with ergot.

Theoretically this drug would seem to be indicated as also is the use of the salicylates.

Here we come against the great bar to empirical therapeutical progress in this and allied disorders. These cases vary so widely in severity, in symptomatology, and in the results, that it is most difficult to decide what have been the results of our medication and what the natural remission of the disease.

These questions could only be settled by an almost infinite number of observations by trained observers.

In the few and scattered epidemics of poliomyelitis the cases have been treated by so many and varied men that we are left much at sea.

When we come to the analysis of the treatment of the resultant conditions we will find a better condition of affairs.

It has been recently suggested by several to use formaldehyde internally in order to obtain its germicidal action in the spinal fluid.

The hope is to find and limit the source of the infection and secondarily to limit its spread in those attacked before too much damage has been done to the ganglion cells.

Strychnine has been often used after the acute symptoms have subsided, but the consensus of opinion seems to be that it is not only of no use, but often of decided harm.

Lovett and Lucas analyzed 635 cases treated in the Children's Hospital in Boston, and their conclusions as to treatment are of interest, especially as in relation to the demand that the diagnosis should, if possible, be made very early. They state: "The stage of onset represents an acute hæmotogenous myelitis. Quiet in bed is most essential. It is very doubtful if beyond this much is accomplished by the use of ergot, belladonna and other drugs that have been used, or blisters and counter irritation. As it seems possible that the absorption of intestinal toxins is a factor, the clearing out of the intestinal tract should be accomplished early. Paralyzed limbs should be supported by the use of mechanical supports as early as possible." In this way many of the disagreeable after effects may be avoided. The question as to how long rest should be allowed before active stimulation is begun is a disputed one. We are not at all sure as to how much of the cord has been hopelessly destroyed, and for this reason should use every effort to maintain the nutrition of affected groups of muscles in the best possible way, hoping that enough cells may have escaped to allow the



muscle to regain its function to a certain degree. The question of surgical assistance which is to be discussed in another paper is an important one. In this connection it should be remembered that at times certain muscles are over-stretched and out-balanced, and it should be very definitely settled before their place is taken by others that they are beyond any possible functioning and that the giving them a proper chance by some simple measures may not be all that is necessary.

The relieving of contractures and the training of muscles out of function from stretching and disuse will at times accomplish results that seem little short of marvelous. To this kind of treatment is due the benefit that we see at times as the result of the manipulations of our friend the osteopath. It should be mentioned that massage is an invaluable adjunct.

Some recommend continuous galvanization of the paralyzed muscles during the first few months followed by interrupted faradic current for a period of three or four years. Application should be made once or twice a week, and in many cases insures a relative cure. This course in all cases may be said to hold out the hope of the minimum of deformity and permanent loss of function, and when accompanied or followed by the assistance that our surgical brethren can give us will enable us to place many of these little patients in a fairly good condition for the battle of life.

## TUBERCULOSIS IN CHILDREN.\*

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**D**URING the past few years a great deal of attention has been paid by many investigators to the subject of tuberculosis in children. Von Behring's statement that tuberculosis in adults is due to infection during infancy served to give great impetus to this inquiry. The publication of the ophthalmo-tuberculin test and the von Pirquet skin test provided new and important methods of investigation. The work of various pathologists demonstrated the frequency of tubercular lesions in early years and the natural extension of sociological work from tuberculous adults to their families has added to the sum total of knowledge.

All sorts of figures have been given to show the prevalence of tuberculosis in children. Hamburger<sup>1</sup> and others have applied the tuberculin test, using the von Pirquet test, or the *intra-dermal* or *stich* reaction. They report 1 or 2 per cent. of positive reactions during the first year of life and an increasing percentage up to 94 per cent. in the thirteenth year. This seems alarming until we remember that while these figures probably show, with approximate correctness,

the proportion of children who have become sensitized to tuberculin by a previous implantation of tubercle bacilli, we cannot accept them as indicating the frequency of the sickness that we call tuberculosis. Many of the cases were apparently well. The results of autopsies showing tubercular lesions in 2 per cent. of all cases examined that died during the first three months of life, 20 per cent. during the balance of the first year and increasing percentages for the following years up to 75 per cent. in the fourteenth year, must be interpreted in the same way. They show the frequency of visible tubercular lesions, but not the frequency of the sickness. In many of these cases the lesions found at autopsy were not the cause of death and not infrequently they were of no clinical importance.

On the other hand Floyd and Bowditch<sup>2</sup> found among 679 children from the poorest homes of Boston, 36 per cent. showing definite signs of pulmonary involvement with an additional 30 per cent. showing symptoms of tuberculosis but without recognizable pulmonary lesions.

Investigations carried on at Sea Breeze<sup>3</sup> indicate that 25 or 30 per cent. of the younger school children from the poor tenement districts of New York are tuberculous. Pissavy<sup>4</sup> states that 31 per cent. of children having one or both parents tuberculous show tuberculosis, while only 8 per cent. of children with non-tuberculous parents show it. Children in rural districts show tuberculosis less frequently than do city children.

From the reports of the Registrar General of London, Riviere<sup>5</sup> quotes the deaths from all forms of tuberculosis collectively. Among children under five years there were 3,788 deaths per 1,000,000 living at that age. Between the ages of five and twenty there were 766 deaths per 1,000,000 living within those age limits. The mortality during the first five years was greater than in any of the other longer periods given, namely, between five and twenty, twenty and forty, forty and sixty, sixty and eighty, and eighty years and over. The mortality between five and twenty years was smaller than in any other period, that in the group of eighty years and upward, 977 per 1,000,000, coming the nearest to it.

School examiners give widely varying figures, according to the standard each sets up as justifying a diagnosis of tuberculosis.

School inspectors in England report on an average 0.47 per cent. of school children showing pulmonary tuberculosis, while one French<sup>6</sup> observer, who included glandular tuberculosis finds 15 per cent. tuberculous among several thousand school children.

These facts admit of but one interpretation, namely, that the infection of children with tuberculosis is of great frequency, that the clinical sickness tuberculosis is common, and that death from tuberculosis is an important element in the general mortality of children. I believe that

\* Read at the annual meeting of the Fourth District Branch, at Schenectady, September 27, 1910.

they warrant us in naming tuberculosis as a children's disease.

The path of entrance of the disease is almost always through either the digestive tract, or the respiratory tract. There is still disagreement which of these paths is the more important, but for practical purposes our attention must be directed to both. Congenital tuberculosis is undoubtedly a possibility. Warthin<sup>7</sup> has demonstrated this fact and has given reasons which lead him to think that congenital tuberculosis is not uncommon. Milk, butter and meat according to Wm. H. Park<sup>8</sup> cause about 2½ per cent. of the tuberculosis in New York City, most of the cases so caused being among children. This is not a large per cent. but it is enough to demand further official control of dairies and their products. The source of infection which is responsible for the vast majority of cases of tuberculosis among children is the transmission of bacilli from other tuberculous persons, either through ignorance or carelessness, or because of the unavoidable limitations of unaided poverty.

During infancy tuberculosis presents a picture altogether different from that seen in adults. The glandular system frequently bears the brunt of the disease. Miliary tuberculosis and tubercular meningitis and abdominal tuberculosis are relatively frequent, as is also tuberculosis of the bones. Marasmus and erythema nodosum<sup>9</sup> may be due to tubercular toxæmia. Pulmonary tuberculosis gives only atypical signs, such as widely distributed rales, either sibilant or moist, the signs of bronchitis or of broncho-pneumonia. The classical signs of infiltration and consolidation are usually absent. If the lungs are involved we have usually a rapidly progressing fatal illness; if the glands alone are involved we often see a child not acutely sick but poorly nourished, with slight fever and other evidence of poor health. In older children we meet with a gradual transition to the type of disease seen in adults in which the pulmonary element dominates the picture with dullness, bronchial breathing, increased voice and whisper, etc., but it is not until the twelfth to fifteenth year that this adult type becomes common. Prior to that age the glandular element remains prominent and the signs in the lungs are not typical.

Aside from the findings of the X-ray, enlarged intrathoracic glands are marked by dullness over the manubrium or over one or all of the five or six upper dorsal vertebræ, or by dullness between the spine and scapula on either side;<sup>10</sup> by bronchophony over the upper dorsal vertebræ; by the presence over this region of the peculiar quality of voice and whisper heard over the cervical vertebræ and which is normally not heard below the spine of the seventh cervical vertebra;<sup>11</sup> by enlarged veins on the upper chest and the temples; by diminished voice and breath sounds over some pulmonary region; and by spasmodic

cough like whooping cough, altered or absent voice, unequal pupils, and pain deep seated in the chest or along to the intercostal nerves. A combination of several of these signs warrants a tentative diagnosis of enlarged intrathoracic glands. The history, the other symptoms and perhaps the von Pirquet skin test will help us to decide whether the enlargement is tubercular or not, as well as to exclude enlargement of the thymus and other conditions.

The physical signs in pulmonary tuberculosis in children are those roughly speaking of localized bronchitis, *i. e.*, diminished voice and breath sounds with sibilant or small moist rales. These signs are found frequently at the base of the lungs and especially at the region of the nipple as well as just below and external to it. The rales may be very few and are often heard only after cough or after expiratory cough. In the presence of the usual general symptoms of tuberculosis such slight atypical pulmonary signs justify a diagnosis of pulmonary tuberculosis in infants and children. Malnutrition, slight fever, rapid pulse and symptoms due to the location of the disease are the common symptoms in children. Pulmonary hemorrhage is not common.

The various tuberculin tests assist in diagnosis. The von Pirquet test, if negative, goes far at any age toward excluding tuberculosis, provided the case is not one of miliary or far advanced tuberculosis, is not in a cachectic condition from any cause, and has not had measles within a short time. Any of these conditions may prevent a reaction in the presence of active tuberculosis. A positive von Pirquet reaction during the first two years of life is strong evidence of active tuberculosis as latent disease is very uncommon at that age. In older children and adults a quick, strong von Pirquet reaction usually indicates more or less active diseases, while a late or poorly marked reaction usually indicates latent or inactive disease. The intradermal reaction is believed by some to be a more reliable one than the von Pirquet, but is not as easy to perform.

The hypodermic use of tuberculin for producing a general and perhaps a focal reaction is not, like the skin tests, devoid of danger. It must not be used in the presence of extensive or active disease, of fever, of hemorrhage, rapid pulse, dyspnoea or cachexia, or where Addison's disease cannot be excluded. Its use in renal tuberculosis would appear dangerous should both kidneys be involved. I do not think the hypodermic test should ever be used except as a last resort, and I believe that very few cases will need it if the various other means of diagnosis are systematically and carefully employed. I do not think that the average general practitioner should employ the hypodermic test. We must never make a diagnosis of active tuberculosis that is of the sickness tuberculosis, from the unsupported evidence of any of the tuberculin tests—a positive

reaction may be caused by typhoid fever. Conversely we must not set aside a diagnosis of tuberculosis based upon symptoms, or signs, or both, on account of a negative result of any form of the tuberculin test. I have omitted any mention of the ophthalmic tuberculin test because I do not believe that it possesses sufficient advantage over the Von Pirquet and the intradermal tests to warrant its use in view of the serious injury to the eye which occasionally results.

Among infants tuberculosis is by no means always fatal if confined to the glands or to the glands with slight pulmonary involvement, although the death rate is high. Extensive involvement of the lungs in infants is however almost always rapidly progressive and fatal and is frequently terminated by tubercular meningitis or miliary tuberculosis. The outlook is better during the third, fourth and fifth years than during infancy, but is not as good as in succeeding years.

The prognosis of pulmonary tuberculosis among children six to twelve years old is according to our results at Stony Wold Sanatorium<sup>12</sup> better than it is among older children or adults, and is better among girls thirteen to sixteen years old than it is among adults, though not as good as it is among the six to twelve year old class. This is true of the immediate results of Sanatorium treatment and is true also of the post discharge results so far as we are able to judge from reports of our children who have been discharged from one to five years. It is my belief that further lapse of time will not materially alter these facts. Craig<sup>13</sup> also finds the prognosis in children with incipient and moderately advanced disease to be better than in adults, though in far advanced cases he believes it to be worse.

The treatment so far as the disease when present is concerned is essentially the same as in adults except that children will stand rather more exercise than adults, in proportion to the lesions present. It is, nevertheless, quite possible for children to exercise too much.

For various reasons we have not used tuberculin in the treatment of the children at Stony Wold. Many reports of its use among children have appeared within the last few months, some favorable, others unfavorable. Engel<sup>14</sup> who has used it extensively says that it must not be used if there is extensive pulmonary disease or if there is a tendency on the part of a small pulmonary lesion to spread. He regards all cases of glandular tuberculosis without pulmonary lesions as suitable for tuberculin treatment and a small, stationary, inactive lesion in the lung is not an absolute contra indication.

Cases of rather sudden death due to a focal reaction in cases of tubercular intrathoracic glands have been reported. In these cases the reaction caused a sudden extensive swelling of the glands with death from closure of large bronchial tubes by pressure from the swollen

glands. Tuberculin is a two-edged sword and must be used with even more care in children than in adults.

Prophylaxis is to me the most important measure. It must begin with the care and education of the parents that they may not transmit tuberculosis to their children if they suffer from it themselves. If they are unable or unwilling to do what is necessary to protect their children either through unteachableness, negligence, or poverty the children should be promptly removed to suitable children's homes. Every state should have at least two such homes. One should be for those exposed to infection but not demonstrably tubercular and for those with latent tuberculosis without active symptoms. It should provide such schooling and training as will fit the inmates for self support, combined with such medical measures and instruction as are needed to keep them well and to protect them, as far as possible from falling victims to tuberculosis in later years. The other should be for those more or less actively diseased. Here the medical side should predominate, the chief aim being to restore the health of the children. A little teaching and training should be carried on here but it should be a secondary consideration and entirely subservient to the cure. The former institution should be essentially a school, the latter a sanatorium and hospital. Children of the more wealthy classes may be cared for at home along the usual lines or at private sanatoria or private schools. Outdoor schools have been established by several cities, usually by replacing one or more walls of an old school building with movable glass doors or windows, and it has been found a practical as well as a popular improvement. The children receive in this way the benefit of the cure on the open porch together with the usual school training. Generally provision is made for furnishing hot milk or soup during the day, often as a supplement to the lunch brought by children who live at a distance from the schoolhouse.

We conducted an outdoor school at Stony Wold Sanatorium last winter and I feel confident that there is nothing to prevent the success of outdoor schools anywhere in the United States except such difficulties as can be readily overcome by warm clothing, blankets, etc. Our school was held in a pavilion entirely open on the south with movable windows on the other sides. Half day sessions were held and while writing was difficult on some days we were obliged to omit the school because of cold weather on only one day. Every city should have its outdoor school and every town should build its school buildings with at least one room arranged for outdoor school work. Gulick's suggestion of tiers of roofs or open floors above the schoolhouse for play and physical culture may be of use in crowded cities.

The struggle to learn at school or college a

mass of knowledge not of practical value should be discouraged and useful outdoor occupations and interests should be cultivated. Medical examination of school children should be extended and perfected and especial attention should be given to glandular tuberculosis.

The day camp, the night camp, the visiting nurse and the district diet kitchen all have their parts to play in prevention and treatment and each deserves a share of our support.

All the organs of a tuberculous child should be kept in the best possible condition. Nasopharyngeal obstructions should be removed, the teeth kept clean and in good repair, ocular defects should be relieved by glasses so far as possible and gastro-intestinal disorders and errors in diet should be corrected.

In closing I wish to present the following points:

*First.*—That tuberculosis is a common disease among children.

*Second.*—That tuberculosis like syphilis, presents many faces. The face presented during infancy differs from that presented in childhood and both are unlike that presented during adult life. Among children tuberculosis is essentially a subacute or chronic disease of the lymphatics,<sup>15</sup> more or less widely spread, although it may be accompanied by lesions of the lungs, bones or other structure.<sup>16</sup>

*Third.*—That tuberculosis is not always fatal among infants and that among children from six to twelve years of age, suffering with incipient or moderately advanced pulmonary tuberculosis, the prognosis is better than among adults.

*Fourth.*—That there is great need for more outdoor schools; for free ventilation of our present schoolrooms instead of the misnamed "model ventilation" which is commonly in use and which as commonly does not ventilate, and that there is also need for state homes for children who cannot be suitably safeguarded and reared in their own families.

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### BLOOD PRESSURE IN ADVANCED ARTERIO-SCLEROSIS.\*

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CLIFTON SPRINGS, N. Y.

**A** GLANCE at the tables of contents of the better Medical Journals of the past two or three years readily convinces one that blood pressure as a symptom in disease is attracting much attention.

We have always recognized its importance, but the sphygmomanometer has awakened an interest far beyond what existed before its invention. It is a great help to be able to compute blood pressure in figures, but if we allow our interest in figures to blind us to the etiological factors in the case, we will awaken later to find that we have been dealing with symptoms and forgetting causes.

My point is this: We have an age and sex standard of normal blood pressures; any marked deviation from which is significant of trouble. In the case of high pressure, if, for example, the reading is 180 systolic, or more, we are prone to become alarmed, and yet many of us have seen cases of arterio sclerosis in which the pressure was 250, 275, 300 or even more, without symptoms. On the other hand, if the reading is considerably below the normal, we at once suspect some wasting disease or asthenic state as tuberculosis, neurasthenia, myocarditis or advanced valvular disease of the heart. The possible relationship between these and other like diseases, and low blood pressure, should be recognized, but we should also remember that cases are not infrequent in which the pressure is normally very low. We have seen several in which the average systolic was below 100.

I have in mind a young man who, while under two-week's observation, did not have a blood pressure above 95. We were not able to find anything pathological in the case. He was under

\* Read at the eleventh annual meeting of the Lake Keuka Medical and Surgical Association, July 21, 1910.

treatment for brain fag. His powers of physical endurance were very good, as evidenced by his playing swift games of tennis without fatigue.

In the study of blood pressure, and in estimating its significance in the individual, we will be much helped if we keep in mind the chief factors which produce it, namely: the ventricular systole, the peripheral resistance, and the elastic recoil of the arteries. If these three factors are in proper relation to each other, a normal pressure exists. Let this relation be changed, and the pressure either becomes too high or too low. Now what happens in the condition under consideration, namely: arterio sclerosis? First let us consider for a moment what constitutes the second element in our group of factors which produce blood pressure, namely: peripheral resistance.

Peripheral resistance is anything that retards the blood current after it leaves the left ventricle. Whether it be obstruction because of narrowed or of obliterated blood vessels, friction, gravitation or what not. Friction between the blood current and the arterial wall, produces a very great resistance, but the elastic recoil of normal arteries, more than compensates for this, and rushes the current on with a force almost equal to that of the ventricular system.

Let this power of recoil be lost, as it is in advanced arterio sclerosis, and resistance instead of recoil becomes the dominant factor. We thus see that in advanced arterio sclerosis the arterial walls are more of a hindrance than a help to the flow of blood. Concomitant with the vascular changes are organic changes which by lessening the vascular caliber of the organs add to peripheral resistance. This is especially true of the kidneys. In fact, the pathological kidney is primarily responsible for more high pressure cases than any other one factor. Again, in senility, obliteration of certain groups of capillaries add to resistance, in direct ratio to their normal caliber. Increased peripheral resistance is then an essential product of arterial sclerosis. Increased peripheral resistance necessitates increased blood pressure. This need is met, in the main, by progressive cardiac hypertrophy. It is nature's way. So long as cardiac hypertrophy is sufficient to compensate for added resistance, so long is our patient comfortable, barring complications and special symptoms, which we are not considering at this time. As we said before—compensation can be afforded in no other way except by cardiac hypertrophy with increased pressure, which pressure must be sufficient to overcome the resistance present. In one case it may be 180 m.m. of mercury, in another 250. Both cases may be free from symptoms. If the high pressure has developed because of permanent pathological changes in arteries or organs, it matters little what the reading is, so long as the heart compensates. Where the high pressure is due to fixed pathological changes only, if it be reduced to a point anywhere

near the normal, symptoms are at once induced, the chief of which is air hunger.

There are certain methods by which reduction to a more or less degree may be brought about temporarily, but what happens? Take, for instance, the use of the nitrites, if they lower pressure at all, in the class under consideration, they do so by increasing the arterial caliber in those areas least effected by sclerotic changes. If the arteries of the brain are most responsive, temporary cerebral congestion is produced, with a corresponding headache. If the abdominal vessels are still expansile, by their use "we bleed our patient into his own blood vessels," thus causing the suffering or air hunger. Beyond a doubt the nitrites are indicated in vascular spasm, but when employed for the express purpose of reducing blood pressure, especially in cases of advanced arterio sclerosis, they are usually disappointing. The same thing is true of certain physical methods. Just now, much is being said about the "oxygen bath" as a blood pressure reducer. It is claimed that it accomplishes this by driving the blood from the circumference toward the center, that is, from the skin, to the muscles and internal organs. Undoubtedly this is good treatment in simple hypertension, and in early arterio sclerosis, but in advanced cases it is just what we should seek to avoid. The heart which has no reserve, and that is true of most of the classes under consideration, needs the support of as active a cutaneous circulation as can be maintained under the circumstances.

I have in mind a case—a man 74 years of age with typical old man's arteries, and a pressure averaging 220, systolic. We succeeded in reducing this to 170 within a week by the oxygen bath. In doing so, we induced all the symptoms of imperfect compensation, chief of which was dyspnoea upon exertion. Discontinuance of the treatment, and a few doses of digitalis and strychnine, restored the relatively normal pressure, and the symptoms disappeared.

A recent experience is also of interest in this connection. A case of arterial sclerosis and chronic Bright's, in a man 51 years of age, came under our care. The chief symptom was dyspnoea upon exertion. At the beginning of treatment, blood pressure was 250. Two days of treatment with the high frequency current, and sodium nitrites internally, reduced the pressure to 215. At this time, after a slight indiscretion, he had as sharp an attack of pulmonary edema without death, as I have seen. After recovering from the acute symptoms, he was given full doses of digitalis. The following day he was more comfortable than he had been for several days, yet his blood pressure had risen to 260.

I wonder if it is clear that we are contending for the recognition of a blood pressure in the individual case of arterio sclerosis which is relatively normal?

In determining what this pressure is we should

first strive to eliminate all functional causes of increase. Perhaps the most important are insufficient elimination of intestines, kidneys and skin, faulty habits in eating and drinking, too free use of tobacco, and a disregard of the increasing need of sleep and rest with advancing years. Eliminate these, or in other words, correct as far as possible the errors of function and of habit, and the blood pressure may be wisely disregarded.

I am convinced, Mr. Chairman, that in the management of cases of advanced arterial sclerosis, especially senile cases, we are often over-zealous in the use of drugs and physical means. We place our finger upon the stiff arteries, and the tense pulse; we examine the chest and find an hypertrophied heart, laboring hard as evidenced by the heaving impulse, the booming first, and the accentuated aortic second sounds; we use the sphygmomanometer, and finding a blood pressure of 200 or more, we proceed to prescribe nitrites and iodides to the circulatory and the gastric discomfort of our patient, or we apply one or more of the accepted physical methods of reducing blood pressure, with equally unpleasant results. These cases need the channels of elimination kept free. They need a proper regulation of their habits, including diet and sleep, and that is about all they do need.

While it is not the purpose of our paper, may I be permitted to point out one common error, that is often misleading? I refer to reaching a conclusion concerning blood pressure after one reading. If possible, both systolic and diastolic pressure should be determined under several different conditions; especially with the patient in physical and mental repose; after exercise; and before and after a full meal. A comparison of these various findings will help much in determining the true pressure. It is well to remember that while under the initial examination, the patient is quite likely to be anxious and apprehensive, which influence acting through the sympathetic system, and possibly by direct stimulation, temporarily raises the blood pressure many points, often 40 or 50. Drawing a conclusion from a single reading under such circumstances, tends to error, which might be embarrassing, if not serious. Not long since at a time when we were desirous of "trying out" a certain method in a high pressure case in which the changes in arteries and kidneys were not pronounced, a woman came to us, who at first seemed to be the one we were looking for. Her blood pressure during examination was 180. We were satisfied that if this could be maintained at about 150 many of her symptoms would disappear. We decided to test the method. It so happened because of unavoidable delay and the intervention of a Sunday, that three days elapsed before the first treatment. Before sending her for the treatment we took the pressure again. It was 140. It remained there under indifferent treat-

ment. It probably was about the same before she came to us. Had she received the intended treatment upon the first day, the logical conclusion would have been, that it was responsible, in part, at least, for the reduction in blood pressure. If for any reason we had not taken the pressure more than once, our conclusions would have been altogether wrong.

## TOXIC AMBLYOPIA AND THE OPTICIAN.

By D. G. YATES, M.D.,  
NEW YORK CITY.

THE following "human document" is commended to the attention of those who believe that refraction of the eye may be safely done by the layman who calls himself an optician, or, according to the latest mode, an optometrist. The case is not unusual. If it were there would be no point in relating it. It is simply a good concrete illustration of the evil of delegating the functions of the trained physician to a business man whose living depends on selling glasses first, last and all the time. As a perfect type the case made its appeal to me, and I hasten to record it while the impression is fresh.

The patient is a man in the middle forties. He is a dispensary case. Although he has been for fifteen years a public accountant, he is a dispensary case. His sight has been failing for the better part of a year. He has gone during this period to the best optician—I mean the most expensive optometrist—on Twenty-third Street, on several occasions, each time getting stronger and stronger lenses. Finally, becoming convinced that changes of glasses did not benefit him, and that he was becoming rapidly blind, he came to the dispensary. He has been a steady drinker and smoker for many years, sometimes to excess. Examination shows that he has a toxic amblyopia; the optic nerve shows the signs of a beginning atrophy; the vision is 20/200 and is not improved by lenses; there is absolute scotoma for red and green. The pathological changes have been going on for some time. Now, if this man had been seen in the beginning of his trouble by a competent oculist the diagnosis would have been made in time to save all or a considerable part of his eyesight. At the present time the prognosis is very doubtful even as to partial recovery.

The man himself does not appeal to our sympathy. He presents a perfect picture of self indulgence—the type of those whose god is their belly. His anxious wife is shabbily dressed and looks as if her portion of the good things in the family had been scant. His efficiency has already been impaired so that he is a public charge, to the extent of seeking free medical treatment. Some one will have to take care of him, temporarily at least, perhaps permanently. At the best he will be a drone in the hive for a considerable time.

Looking at the man as a human being, his sight might have been saved; regarding him as a social unit, his usefulness to the community might have been preserved, if he had received competent examination and advice when his eye trouble began. Humanity and public policy alike forbid this inexpert trifling with the most important of the special senses.

Let it be repeated, this case is not rare, but one of thousands. There are many other diseases of the eye which must of necessity pass unrecognized by the layman unskilled in the use of the ophthalmoscope, the early diagnosis of which is vital to the patient.

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## Medical Society of the State of New York.

### ANNOUNCEMENT.

Dr. Charles Stover, President, has re-appointed Dr. Frank Van Fleet a member of the National Legislative Council of the American Medical Association.

### CORRECTIONS FOR THE 1910 DIRECTORY.

The address of Dr. Robert Holmes Greene (page 115), should be 78 E. 56th Street.

The address of Dr. Albert Kohn (page 142), should be 122 E. 58th Street, telephone 2588 Plaza.

### NOTICE.

Owing to the strike of the employees of the express companies in New York the delivery of the Directories has been unavoidably delayed.

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## DISTRICT BRANCHES.

### FIRST DISTRICT BRANCH.

ANNUAL MEETING AT NEWBURGH, OCTOBER 27, 1910.

#### BUSINESS SESSION.

The meeting was opened at 2 P. M. Dr. T. D. Mills, President in the chair.

The President appointed Drs. C. E. Townsend, E. H. Maynard and E. R. Elliott a Committee on Nominations.

The President read a letter from the Secretary of the State Society in relation to the suggested changes of boundaries of the District Branches. There being no response from the members present, no action was taken.

Dr. Daniel B. Hardenbergh, of Middletown, read a letter from Dr. Martin Cavana relative to the dangers in undrawn poultry and game, and asked for the endorsement of the bill before the Legislature to prohibit the cold storage of poultry and game.

A motion to endorse the bill was introduced by Dr. Hardenbergh and seconded by Dr. Waldo and unanimously carried.

The Committee on Nominations reported W. Stanton Gleason, M.D., Newburgh, for President; Daniel B. Hardenbergh, M.D., Middletown, for Vice-President; Charles E. Denison, M.D., New York, for

Secretary; James E. Sadlier, M.D., Poughkeepsie, for Treasurer.

No other nominations being offered, the above were elected for the ensuing year.

Dr. E. C. Thompson desired to inform the First District Branch that Dr. Edward C. Rushmore, of Tuxedo Park, extends an invitation to the members of the First District to hold its next annual meeting at Tuxedo Park. Dr. Thompson moved that it be recommended to the Executive Committee that the invitation of Dr. Rushmore to hold the next meeting at Tuxedo Park be accepted. Seconded by Dr. Winter. Carried.

#### SCIENTIFIC SESSION.

President's Address, T. D. Mills, M.D., Middletown.

"Hints for the General Practitioner on the Nature, Etiology and Early Diagnosis of Insanity," C. F. MacDonald, M.D., Central Valley.

Discussion opened by Henry Lyle Winter, M.D., Cornwall.

"Sacral Suspension of the Uterus," J. Van Doren Young, M.D., New York.

Discussion opened by Ralph Waldo, M.D., New York.

"County Hospital Care for the Tuberculous," D. B. Hardenbergh, M.D., Middletown.

Discussion opened by W. Stanton Gleason, M.D., Newburgh.

"Mesenteric Thrombosis," E. C. Thompson, M.D., Newburgh.

Discussion opened by J. F. Sadlier, M.D., Poughkeepsie.

"Rabies; Its Extent and Methods of Control in New York State," J. F. Devine, D.V.S., Goshen.

Discussion opened by Charles W. Dennis, M.D., Goshen.

"Ectopic Gestation," J. B. Hulett, M.D., Middletown.

Discussion opened by John T. Howell, M.D., Newburgh.

"The Rewards of the Obscure Physician," Merton J. Sanford, M.D., Suffern.

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## THIRD DISTRICT BRANCH.

ANNUAL MEETING, AT ALBANY, OCTOBER 4, 1910.

#### BUSINESS SESSION.

The following officers were elected:

President, Mark O'Meara, Kingston; Vice-President, John B. Harvie, Troy; Secretary, H. L. K. Shaw, Albany; Treasurer, Sherwood V. Whitbeck, Hudson.

Resolutions were adopted to urge the Finance Committee of the Legislature to increase the appropriation for the State Medical Library from \$2,000 to \$3,000 a year.

#### SCIENTIFIC SESSION.

The morning session was held at the Albany Hospital and the members of the Branch received instruction in Medical and Surgical Diagnosis.

"Presentation of Medical Cases in the Dispensary," S. B. Ward, M.D., Albany; J. D. Craig, M.D., Albany.

"Simultaneous Demonstration of Methods of Clinical Diagnosis in Small Rooms of Dispensary: Diseases of the Blood," C. B. Hawn, M.D., Albany; M. Douglas, M.D., Albany; H. P. Sawyer, M.D., Troy.

"Diseases of the Heart," J. F. Rooney, M.D., Albany; C. K. Winne, Jr., M.D., Albany; F. C. Conway, M.D., Albany.

"Infectious Diseases," H. S. Bernstein, M.D., Boston, Mass.; Ellis Kellert, M.D., Albany.

"Diseases of the Nervous System," L. Archambault, M.D., Albany; N. K. Fromm, M.D., Albany.

"Diseases with Urinary Findings," V. C. Myers, Ph.D., W. A. Bing, M.D., J. P. O'Brien, M.D., Albany.

"Diseases of the Digestive System," L. H. Neuman, M.D., Albany; J. Meyers, M.D., Albany; T. F. Doerschler, M.D., Albany.

"Presentation of Surgical Cases in the Amphitheatre: Injuries to the Intestinal Tract," E. Vander Veer, M.D., Albany.

"Surgery of the Gall Bladder," A. Vander Veer, M.D., Albany.

"In the Private Operating Rooms: The Diagnosis and Treatment of Flat Foot," J. H. Gutmann, M.D., Albany.

"Local Anæsthesia," J. A. Cox, M.D., Albany.

"The Diagnosis and Treatment of Surgical Kidney Lesions," J. N. Vander Veer, M.D., Albany.

"Treatment of Chronic Sinuses with Beck's Bismuth Paste," A. H. Traver, M.D., Albany.

"Diagnosis and Treatment of Lesions of the Thyroid Gland," G. E. Beilby, M.D., Albany.

At noon the members were taken by automobile to the Albany Hospital Sanitarium for Tuberculosis, where there was a demonstration of unusual cases and of the various diagnostic tests by Drs. Howard Van Rensselaer and Erastus Corning.

Luncheon was served at the Albany Hospital.

The afternoon session was held at the Historical and Art Society Rooms, and the following papers were read:

"Limitations of Laboratory Diagnosis," T. Ordway, M.D., Albany.

President's Address: "The Diagnostic House," A. MacFarlane, M.D., Albany.

Address, "Infantile Paralysis," Simon Flexner, M.D., New York City.

"Vaccine Therapy in Tuberculosis," A. T. Laird, M.D., Albany.

"The Importance of an Early Diagnosis in Abnormal Pelvic Conditions," Mary Gage-Day, M.D., Kingston.

"Exhibition of X-Ray Plates," A. F. Holding, M.D., Albany; W. H. Happel, M.D., Albany.

The evening session was held at the Historical and Art Society Rooms and short travel talks were given by Drs. J. N. Vander Veer, H. L. K. Shaw, Andrew MacFarlane, S. B. Ward and A. Vander Veer. At the close of the talks there was an informal reception at the University Club in honor of Dr. Mark O'Meara, the President-elect.

The next meeting will be at Kingston.

#### FOURTH DISTRICT BRANCH.

ANNUAL MEETING, AT SCHENECTADY, SEPTEMBER 27, 1910.

##### BUSINESS SESSION.

The following officers were elected:

President, Grant C. Madill, Ogdensburg; Vice-President, Fred G. Fielding, Glens Falls; Secretary, Frederic J. Resseguie, Saratoga Springs; Treasurer, George H. Oliver, Malone.

##### SCIENTIFIC SESSION.

President's Address, Dayton L. Kathan, M.D., Schenectady.

"Chronic Gastro-Intestinal Disorders in Older Children," Frank Vander Bogert, M.D., Schenectady.

"Fibroid Uterus Didelphys," James B. Conant, M.D., Amsterdam.

"Report of a Case of Suppurative Mastoiditis with Involvement of the Lateral Sinus," F. G. Fielding, M.D., Glens Falls.

"Report of a Case of Dermoid Cyst," George Lenz, M.D., Gloversville.

"Diabetes," George F. Comstock, M.D., Saratoga Springs.

Discussion opened by Charles G. Briggs, M.D., Schenectady.

"Tuberculosis in Children," H. S. Goodall, M.D., Stony Wold Sanatorium, Lake Kushaqua.

Discussion opened by Louis Faust, M.D., Schenectady.

"Prognosis of Tuberculosis," Charles C. Trembley, M.D., Saranac Lake.

"The Functions of the Heart Muscle in Relation to Diagnosis and Therapeutic," Charles Stover, M.D., Amsterdam.

"A Brief Résumé of the Physiological Actions of the Various Heart Tonics; their Uses and Indications," W. B. Melick, M.D., Fort Edward.

"Symposium on Poliomyelitis: (a) Etiology and Pathology," Paul A. Lewis, M.D., Rockefeller Institute, New York City.

"(b) Symptomatology and Treatment," Charles F. Clowe, M.D., Schenectady.

"(c) Surgical Sequels," J. B. Garlick, M.D., Schenectady.

Discussion opened by N. A. Pashayan, M.D., Schenectady.

"Symposium on Surgery of the Upper Abdomen: (a) Ulcer of the Stomach and Duodenum," Charles G. McMullen, M.D., Schenectady.

"(b) The Diagnosis and Treatment of Gall Stones," Grant C. Madill, M.D., Ogdensburg.

"(c) Malignant Diseases of Upper Abdomen," William P. Faust, M.D., Schenectady.

"(d) End Results of Gall Bladder Surgery," E. MacD. Stanton, M.D., Schenectady.

General discussion.

#### SIXTH DISTRICT BRANCH.

ANNUAL MEETING AT CORTLAND, SEPTEMBER 27, 1910.

##### BUSINESS SESSION.

The following officers were elected for the ensuing year: President, Sherman Voorhees, Elmira; Vice-President, Frederick Miller, Binghamton; Secretary and Treasurer, Herbert W. Fudge, Elmira.

Resolutions of respect and condolence were adopted on the deaths of the late President of the State Society, Dr. Charles Jewett, and the Hon. Chester F. Wickwire.

##### SCIENTIFIC SESSION.

President's Address, F. DeW. Reese, M.D., Cortland.

"The Outlook, an Appreciation," A. S. Chittenden, M.D., Binghamton.

"Glaucoma," R. L. Crockett, M.D., Oneida.

"Blood Pressure, its Significance and Treatment," J. K. King, M.D., Watkins.

"The Borderland of Sanity," Prof. C. P. Emerson, Cornell Medical College.

"Report of a Case of Duodenal Perforation," J. J. Kane, M.D., Binghamton.

"Some Laboratory Tests as an Aid in the Diagnosis of Disturbed Liver Functions," LaRue Colegrove, M.D., Elmira.

"Extra-Uterine Pregnancy," C. Graham, M.D., Rochester, Minn.

"Notes on Digestive Disturbances," Robert T. Morris, M.D., New York City.

"Morbid Abdominal Reflexes and Their Significance; Remarks on Vaccine Therapy," A. T. Bristow, M.D., Brooklyn.

"Aseptic Entrance of Urethra and Vagina," B. F. Lockwood, M.D., Brookton.

"Surgery of the Stomach," M. M. Lucid, M.D., Cortland.

"A Case of Tetanus; Treatment and Recovery," P. M. Neary, M.D., Cortland.



"Supra-Orbital Neuralgia," R. P. Higgins, M.D., Cortland.

During the afternoon the members inspected the elegant new Cortland Hospital, the gift to the city through the generosity of the late Chester F. Wickwire.

A reception was given by Hon. and Mrs. T. H. Wickwire at their home.

### SEVENTH DISTRICT BRANCH.

ANNUAL MEETING, GENEVA, THURSDAY, SEPTEMBER 15, 1910.

#### BUSINESS SESSION, 2.30 P. M.

The meeting was called to order by the President, Dr. W. W. Skinner.

The minutes of the last meeting were read and approved. Dr. Brown, of Rochester, moved and it was duly seconded and carried.

WHEREAS, It is thirteen years since a member of the Seventh District Branch has been President of the State Society and all other sections of the State have been so honored; therefore be it

Resolved, That the Seventh District Branch of the Medical Society of the State of New York propose the name of its first president, Dr. John F. W. Whitbeck, Rochester, N. Y., for the office of President of the Medical Society of the State of New York, and urge each county society in the Seventh District Branch to direct its delegates to sustain this resolution, and further be it

Resolved, That this resolution be sent to the secretary of each county society in the Seventh District Branch.

The President, upon motion duly seconded and carried, appointed a committee of five, consisting of Drs. Elliott, Creveling, Ruggles, Lester and Ainsworth, to nominate the officers for the ensuing year and to report on a favorable place for holding the next annual meeting.

The committee suggested Rochester and Corning. By division of the House Rochester was selected as the next place of meeting.

The following officers were nominated by the committee and duly elected by the District Branch for the ensuing year: President, W. T. Mulligan, Rochester; Vice-President, H. R. Ainsworth, Addison; Secretary, J. F. Myers, Sodus; Treasurer, H. J. Knickerbocker, Geneva.

#### SCIENTIFIC SESSION.

President's Address, W. W. Skinner, M.D., Geneva. "Pathologic Findings in the Right Iliac Fossa," J. P. Creveling, M.D., Auburn.

Discussion by Dr. Wisner R. Townsend, who reported a case of "Pott's Disease with Abscess," which had been diagnosed as appendicitis.

"Diagnosis and Clinical Significance of Peritonitis," H. B. Smith, M.D., Corning.

"Gen. Peritonitis—Shall We Ask Nature to do Her Own Surgery?" W. Douglas Ward, M.D., Rochester

Discussion by Drs. Moore, Creveling and Brown. "Varicose Ulcers and a Method of Treatment," F. W. Lester, M.D., Seneca Falls.

Discussion by Drs. Skinner, Bowen and Ruggles. "Some Neglected Points in Office Practice," G. E. P. Stevenson, M.D., Penn Yan.

"Animal Experimentation," A. W. Armstrong, M.D., Canandaigua.

G. H. Witter, M.D., Senator from the Forty-fourth District, New York State, urged all members to interest their Assemblymen and Senators in this subject, so that when legislation was introduced they could act intelligently. Those opposed to vivisection will no doubt continue to have bills introduced with the hope that some day they may get one passed. Eternal vigilance is essential.

Discussion by Dr. Wisner R. Townsend, who suggested that doctors instruct their patients on the subject.

"Diet in Typhoid Fever," H. J. Knickerbocker, M.D., Geneva.

"Systematic Colon Irrigation in Typhoid Fever," W. I. Dean, M.D., Lyons.

"Early Diagnosis of Syphilis," E. Wood Ruggles, M.D., Rochester.

"Importance of Recognition and Treatment of Aneurysms," A. H. Paine, M.D., Caledonia.

"Infection of the Urinary Tract by Staphylococcus Albus," W. T. Mulligan, M.D., Rochester.

"Care and Treatment of Epileptics," W. T. Shanahan, M.D., Sonyea.

"Appendicitis During Pregnancy," C. C. Lytle, M.D., Geneva.

"Arterial Sclerosis as a Factor in Mental Diseases," T. J. Currie, M.D., Willard.

"Iodine Disinfection of Wounds," C. F. Nieder, M.D., Geneva.

Moved, seconded and carried, that a vote of thanks be rendered Dr. Skinner and the profession of Geneva for courtesies extended by them.

### EIGHTH DISTRICT BRANCH.

ANNUAL MEETING AT BUFFALO, N. Y., SEPTEMBER 27, 28, 1910.

#### TUESDAY, SEPTEMBER 27, 1910.

Afternoon session called to order by the President, Edward Munson, M.D.

President's Address, "General Subject of Diagnosis," Edward Munson, M.D., Medina.

"Symposium-Poliomyelitis. Etiology and Epidemiology," L. Kauffman, M.D., Buffalo.

Discussion opened by Health Commissioner Francis E. Fronczak, M.D., followed by Edward Clark, M.D., of the State Commission on Poliomyelitis.

"Symptomatology," Irving M. Snow, M.D., Buffalo.

"Diagnosis and Treatment," James W. Putnam, M.D., Buffalo.

"Sequelæ," Prescott Le Breton, M.D., Buffalo.

Discussion of the papers of Drs. Snow, Putnam and Le Breton opened by Charles Cary, M.D., followed by Floyd S. Crego, M.D., and R. O. Meisenbach, M.D.

A subscription dinner was held at 7 P. M. at the University Club, at which 69 members were present.

#### WEDNESDAY, SEPTEMBER 28, 1910.

#### BUSINESS SESSION.

Moved by Dr. Arthur G. Bennett, seconded by Dr. Charles A. Wall and carried, that:

The Eighth District Branch of the Medical Society of the State of New York request the constituent county societies to draft resolutions endorsing the movement for a National Health Bureau with a Commissioner of Public Health, who shall have a seat in the President's cabinet, and that the societies send copies of the resolutions to their representatives in Congress.

Moved by Dr. Charles A. Wall, seconded and carried, that: The determination of the time and place of the next meeting be delegated to the Executive Committee.

The following officers were elected: President, Thomas H. McKee, M.D., Buffalo; First Vice-President, Henry A. Eastman, M.D., Jamestown; Second Vice-President, Arthur G. Bennett, M.D., Buffalo; Secretary, Carl Tompkins, M.D., Buffalo; Treasurer, Charles A. Wall, M.D., Buffalo.

#### SCIENTIFIC SESSION.

"Meningitis," Floyd S. Crego, M.D., Buffalo.

Discussion by L. Kauffman, M.D. "Experiences with Eclampsia," M. P. Messinger, M.D., Oakfield.

Discussion by Drs. Frost, Wall, Kauffman, McKenney, Grosvenor, Torrey, Wright, Mendlein, L. C. Lewis and J. E. K. Morris.

"Gun Shot Wounds of the Abdomen," Thew Wright, M.D., Buffalo.

Discussion by Drs. Frank McGuire and Scott.

"Some Old Truths About Infant Feeding Worth Repeating," Carl G. Leo-Wolf, M.D., Niagara Falls.

Discussion by Dr. Charles A. Wall.

"Prolapse of Uterus and Bladder," Earl P. Lothrop, M.D., Buffalo.

Owing to the shortness of time discussion was omitted with the exception of the last paper which was discussed by Dr. Cora B. Lattin.

## COUNTY SOCIETIES.

### RICHMOND COUNTY MEDICAL SOCIETY.

REGULAR MEETING, AT THE STATEN ISLAND ACADEMY, OCTOBER 12, 1910.

"Diagnostic Significance of Abdominal Pain," Ludwig Kast, M.D., New York.

### MEDICAL SOCIETY OF THE COUNTY OF SCHENECTADY.

REGULAR MEETING AT SCHENECTADY, OCTOBER 11, 1910.

"A Few Observations Abroad," John H. Collins, M.D., Schenectady; F. MacD. Stanton, M.D., Schenectady.

### ONTARIO COUNTY MEDICAL SOCIETY.

ANNUAL MEETING AT CANANDAIGUA, OCTOBER 11, 1910.

President's Address, C. C. Lytle, M.D., Geneva.

"Eye-Strain in Epilepsy, with Presentation of Case," J. A. Spengler, M.D., Geneva.

"Some Medico-Legal Decisions," W. C. Ellis, Esq.

"The X-Ray in Medical Diagnosis," H. M. Imboden, M.D., Clifton Springs.

### MEDICAL SOCIETY OF THE COUNTY OF ORLEANS.

REGULAR MEETING AT KNOWLESVILLE, OCTOBER 4, 1910.  
BUSINESS SESSION.

The following officers were elected:

President, J. H. Taylor, Holley; Vice-President, F. W. Scott, Medina; Secretary and Treasurer, R. E. Brodie, Albion. Censors, Edward Munson, Medina; John Dugan, Albion, and George Post, Holley. Delegate to State Society, J. H. Taylor, Holley. Alternate, Edward Munson, Medina.

#### SCIENTIFIC SESSION.

"Spinal Anæsthesia," Arthur Wright, M.D., New York.

"County Laboratories," C. W. Hennington, M.D., Rochester.

### THE MEDICAL SOCIETY OF THE COUNTY OF STEUBEN.

SEMI-ANNUAL MEETING AT HORNELL, OCTOBER 11, 1910.

"Modern Crusades," J. L. Miller, M.D., Corning.

"A Study of Blood Pressure and the Clinical Value of the Sphygmometer in General Practice," C. R. Bowen, M.D., Almond.

"Premature Detachment of a Normally Situated Placenta.—Report of a Case with Autopsy Findings," L. M. Kysor, M.D., Hornell.

"Some Practical X-Ray Therapy," A. B. Straight, M.D., Hornell.

"How to Manage Placenta Previa," J. G. Kelley, M.D., Hornell.

### MEDICAL SOCIETY OF THE COUNTY OF WASHINGTON.

SEMI-ANNUAL MEETING AT GREENWICH, OCTOBER 4, 1910.

Meeting called to order at 11.15 A. M. President Cuthbert in the chair.

#### SCIENTIFIC SESSION.

"Some Uses of the High Frequency Current," John Millington, M.D., Greenwich.

"Problems of a Social Evil" (Vice-President's Address), G. D. Wilde, M.D., Ft. Edward.

"Medical Fallacies Among Lay People," G. M. Stillman, M.D., Argyle.

"The Cutaneous Tuberculin Test," S. Pashley, M.D., Hartford.

"Disease of Spinal Cord," S. A. Reed, M.D., Salem.

### MEDICAL SOCIETY OF THE COUNTY OF CATTARAUGUS.

REGULAR MEETING AT OLEAN, TUESDAY, OCTOBER 4, 1910.

#### BUSINESS SESSION.

Meeting called to order at 2 P. M., Dr. Torrey in the chair.

Moved by Dr. Lake and seconded by Dr. Boothe, carried, that the Secretary of this Society be directed to communicate with each physician in the county, asking his opinion as to the advisability of the erection of a hospital for Tuberculosis within the county, and report the result of such correspondence to the chairman of the Special Committee on Tuberculosis.

Moved by Dr. Lake and seconded by Dr. Boothe, carried, that a special meeting of the Society be held at Salamanca, N. Y., on Tuesday, November 1, 1910; that at such special meeting the Committee on Tuberculosis of the Board of Supervisors and the officers of the County Anti-tuberculosis Society be invited to be present. Furthermore, that arrangements be made for a public meeting in the evening of the same date for the consideration of the question of the establishment of a Tuberculosis Hospital in the County.

#### SCIENTIFIC SESSION

"Tubercular Meningitis," James W. Putnam, M.D., Buffalo.

"Hospital Care of Tuberculous Patients," W. A. Howe, M.D., Deputy Commissioner of Health.

"Relation of the Physician to the Pharmacist," Eli H. Long, M.D., Buffalo.

The banquet which followed was given in honor of the Pharmacists of Cattaraugus County.

### MEDICAL SOCIETY OF THE COUNTY OF DUTCHESS.

ANNUAL MEETING AT POUGHKEEPSIE, OCTOBER 12, 1910.

#### BUSINESS SESSION.

The following officers were elected:

President, Charles W. Pilgrim, Poughkeepsie; Vice-President, J. C. Otis, Poughkeepsie; Secretary, F. J. Mann, Poughkeepsie; Treasurer, L. C. Wood, Poughkeepsie. Censors, J. W. Poucher, Poughkeepsie; J. S. Wilson, Poughkeepsie, and H. R. Powell, Poughkeepsie.

sie. Delegate to State Society, I. D. LeRoy, Pleasant Valley; Alternate, Harvey Losee, Upper Red Hook. Counsel, George V. L. Spratt.

The following resolution was passed:

"That the Medical Society of the County of Dutchess, being in hearty accord with the erection of the Tuberculosis Hospital by the Board of Health of the City of Poughkeepsie would respectfully request that the said Board of Health be urged to expedite the matter as much as possible."

#### SCIENTIFIC SESSION.

Address of the President—on the Writings of Dr. Oliver Wendell Holmes, J. W. Poucher, M.D., Poughkeepsie.

As a result of the discussion which followed the reading of this paper the delegates to the Annual Meeting of the State Society were instructed to bring up for consideration before the House of Delegates the question of a testimonial to the memory of Dr. Holmes.

"Loose Kidney," R. T. Morris, M.D., New York.

A talk on Diet was given by F. Howell Green, M.D., Poughkeepsie.

"Resumé of the Various Modern Views of Hysteria with Special Reference to the Concept of Freud," F. W. Parsons, M.D., Poughkeepsie.

"The Hamilton Dressing for Treatment of Fractures of Femur in Children," George Lane, M.D., Poughkeepsie.

The annual banquet which was given under the management of a Committee consisting of Drs. J. S. Wilson, Aaron Sobel and C. E. Lane was a delightful affair, the president, Dr. Poucher, as toastmaster, and the speakers, Drs. J. C. Otis, R. W. Andrews, I. G. Harris, Grace N. Kimball, Judge George V. L. Spratt, counsel for the Society and Judge Frank Hasbrouck.

### BOOKS RECEIVED.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

**A TREATISE ON ORTHOPEDIC SURGERY.** By ROYAL WHITMAN, M.D., Assistant Professor of Orthopedic Surgery in the College of Physicians and Surgeons of Columbia University, New York; Professor of Orthopedic Surgery in the New York Polyclinic Medical School and Hospital; Associate Surgeon to the Hospital for Ruptured and Crippled; Orthopedic Surgeon to the Hospital of St. John's Guild; Consulting Surgeon to St. Agnes Hospital for Crippled and Atypical Children, White Plains, and to the New York Home for Destitute Crippled Children; Member of the Royal College of Surgeons of England; Member and Sometime President of the American Orthopedic Association; Corresponding Member of the British Orthopedic Society; Member of the New York Surgical Society, etc. Fourth edition, revised and enlarged. Illustrated with 601 engravings. Lea & Febiger. Philadelphia and New York. 1910.

**THE ESSENTIALS OF MATERIA MEDICA AND THERAPEUTICS FOR NURSES.** By JOHN FOOTE, M.D., Assistant Professor of Therapeutics and Materia Medica, Georgetown University School of Medicine; Instructor in Materia Medica and Therapeutics, Providence Hospital Training School for Nurses. Philadelphia and London. J. B. Lippincott Company. 1910.

**THE ESSENTIALS OF HISTOLOGY: DESCRIPTIVE AND PRACTICAL.** For the Use of Students. By E. A. SCHAFER, M.D., Sc.D., LL.D., F.R.S., Professor of Physiology in the University of Edinburgh. Formerly Jodrell Professor of Physiology in University College, London. Eighth edition. Lea & Febiger. Philadelphia and New York. 1910.

**PATHOGENIC MICRO-ORGANISMS INCLUDING BACTERIA AND PROTOZOA.** A Practical Manual for students, physicians and health officers. By WILLIAM HALLOCK PARK, M.D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, and Director of the Research Laboratory of the Department of Health, New York City; and ANNA W. WILLIAMS, M.D., Assistant Director of the Research Laboratory; Pathologist to the New York Infirmary for Women and Children. Fourth edition, enlarged and thoroughly revised. With 196 engravings and 3 full-page plates. Lea & Febiger. New York and Philadelphia. 1910.

**OBSTETRICAL NURSING FOR NURSES AND STUDENTS.** By HENRY ENOS TULEY, A.M., M.D., Professor of Obstetrics, Medical Department University of Louisville; Visiting Obstetrician and Lecturer on Obstetrics to Training School for Nurses, John N. Norton Memorial Infirmary and Louisville City Hospital; Member Sloane Maternity Hospital Alumni; Executive Secretary and Chairman Section on Diseases of Children, American Medical Association; Secretary Mississippi Valley Medical Association, etc. With 73 illustrations. Second edition, revised and rewritten. John P. Morton & Company, Publishers, Louisville, Ky., 1910. Price, \$1.50.

**INTERNATIONAL CLINICS.** A quarterly of illustrated clinical lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pædiatrics, Obstetrics, Gynæcology, Orthopædics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and other topics of interest to Students and Practitioners. By leading members of the medical profession throughout the world. Edited by HENRY W. CATTELL, A.M., M.D., Philadelphia, U. S. A., with the collaboration of WM. OSLER, M.D., Oxford; JOHN H. MUSSER, M.D., Philadelphia; A. MCPHEDRAN, M.D., Toronto; FRANK BILLINGS, M.D., Chicago; CHAS. H. MAYO, M.D., Rochester; THOS. H. ROTCH, M.D., Boston; JOHN G. CLARK, M.D., Philadelphia; JAMES J. WALSH, M.D., New York; J. W. BALLANTYNE, M.D., Edinburgh; JOHN HAROLD, M.D., London; RICHARD KRETZ, M.D., Vienna. With regular correspondents in Montreal, London, Paris, Berlin, Vienna, Leipsic, Brussels and Carlsbad. Vol. III. Twentieth Series, 1910. Philadelphia and London. J. B. Lippincott Company. 1910.

**A HANDBOOK OF THE SURGERY OF CHILDREN.** By E. KIRMISSON, Professor of the University of Paris; Surgeon to the Hospital for Sick Children, etc. Translated by J. KEOGH MURPHY, M.C. (Cantab), F.R.C.S.; Surgeon, Miller General Hospital for South East London; Senior Assistant-Surgeon Paddington Green Children's Hospital. Henry Frowde, Oxford University Press. Hodder & Stoughton, Warwick Square, E. C. 1910. Price, \$7.00.

**FRACTURES AND THEIR TREATMENT.** By J. HOGARTH PRINGLE, M.B. (Ed.), F.R.C.S. (Eng.), Glasgow. London. Henry Frowde, Oxford University Press. Hodder & Stoughton, Warwick Square, E. C. 1910. Price, \$5.50.

**APPLIED ANATOMY.** The Construction of the Human Body Considered in Relation to Its Functions, Diseases and Injuries. By GWILYM G. DAVIS, Associate Professor of Applied Anatomy, University of Pennsylvania; M.D., Universities of Pennsylvania and Goettingen; Member of the Royal College of Surgeons, of England; Surgeon to the Episcopal, St. Joseph's and Orthopedic Hospitals; Orthopedic Surgeon to the Philadelphia General Hospital; Fellow of the American Surgical Association; Member of the Society of Clinical Surgery; Member of the American Orthopedic Association; Fellow of the Philadelphia Academy of Surgery, the Philadelphia College of Physicians, and the American Academy of

Medicine, etc. With 630 illustrations, mostly from original dissections and many in color. By Erwin F. Faber. Philadelphia and London. J. B. Lippincott Company. Price, \$6.00.

A TEXT-BOOK OF BACTERIOLOGY. A Practical Treatise for Students and Practitioners of Medicine by PHILIP HANSON HISS, JR., M.D., Professor of Bacteriology, College of Physicians and Surgeons, Columbia University, New York City, and HANS ZINSSER, M.D., Associate Professor in Charge of Bacteriology, Leland Stanford, Jr., University, Palo Alto, California, with 156 illustrations in the text, some of which are colored. Price, \$3.75. D. Appleton & Co., New York and London. 1910.

### FREDERICK HOLME WIGGIN.

At the meeting of the Medical Society of the State of New York held in January, 1902, a committee was appointed on the recommendation of the retiring president, Dr. Elsner, to confer with the New York State Medical Association for the purpose of formulating a plan to reorganize and unify the medical profession of the State which for twenty years has been divided into two hostile camps. Dr. Wiggin was appointed a member of the committee of the Association by its president, Dr. Hubbell. During the ensuing year little was accomplished. In October, 1902, Dr. Wiggin was elected president and in October, 1903, a new committee was appointed by him to carry on the work with the Committee of the Medical Society of the State of New York. The two committees met as a joint committee, the personnel of which remained unchanged until unification became a fact when it was discharged. No one save those who were directly concerned in the work of the committees can ever have more than a faint idea of the prejudices which had to be overcome, the obstacles legal and technical which had to be surmounted. It was the fortune of the writer then to be president of the Medical Society of the State of New York and he had many conferences with Dr. Wiggin at a time when the two committees were at a dead lock. This was before the formation of the joint committee. As a result of these conferences he was impressed with Dr. Wiggin's intense anxiety for the welfare of the profession. He appreciated fully the evils which had resulted from the old dissension, and even before the formation of Dr. Elsner's Committee, had in mind various plans for reunion. In 1900 when Secretary of the State Association he was largely instrumental in its reorganization which occurred on April 14th of that year when Governor Roosevelt signed the charter of the Association. In 1902 he persuaded the New York State Medical Association to adopt the principle of defense against malpractice suits. He was also instrumental in establishing the Journal and Directory. When unification took

place the Medical Society of the State of New York adopted the organization of the New York State Medical Association, also its defense plan and continued the Journal and Directory. All that is most valuable to-day as the result of the labors of the Conference Committee was originally due to Dr. Wiggin's genius and foresight. The profession of this State is greatly indebted to him for many of the things which are its most valued possessions.

Since the union of the two societies Dr. Wiggin appeared but little in public. As a result of much hard work his health broke down and about a year ago he retired from active work and went to live in Flushing, L. I. About the middle of October he went to Atlantic City to recuperate. The day of his death he seemed no worse than usual, but he died suddenly from heart failure on October 28th. He was born at Kingston-on-Thames, England, in 1853. He studied at the Rensselaer Polytechnic Institute, Troy, N. Y., and graduated in medicine from the Bellevue Hospital Medical College in 1877. After graduation he served on the House Staff of Bellevue Hospital. He practiced medicine at Litchfield, Conn., until 1890. Then he came back to New York where he practiced until a year ago. From 1892 to 1908 he was visiting surgeon and gynecologist at the New York City Hospital and Adjunct Visiting Surgeon to Bellevue Hospital during 1897 and 1898. He was formerly one of the vice-presidents of the American Medical Association; secretary of the Judicial Council of the American Medical Association; president of the Alumni Society of Bellevue Hospital; a fellow of the New York Academy of Medicine; a trustee of the Mott Memorial Library; honorary member of the Congress of German Surgeons at Berlin, Germany, and a member of the Harvey Society, New York Medico-Surgical Society, the Council of the New York Academy of Sciences, the Delta Psi Fraternity, and the Union League Club.

### DEATHS.

- ABRAM BROTHERS, M.D., New York City, died October 14, 1910.  
 GEORGE V. HANN, M.D., New York City, died September 20, 1910.  
 ELLIS A. MERKLEY, M.D., Gouverneur, died October 2, 1910.  
 JOHN H. NESBITT, M.D., New York City, died October 27, 1910.  
 STEPHEN A. RUSSELL, M.D., Fulton, died September 5, 1910.  
 HUGH SLOAN, M.D., Utica, died September 7, 1910.  
 MICHAEL B. VAN BUSKIRK, M.D., Aurora, died October 30, 1910.  
 FREDERICK HOLME WIGGIN, M.D., Flushing, L. I., died October 28, 1910.

# NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

ALGERNON THOMAS BRISTOW, M.D., Editor  
Business and Editorial Offices: 17 West 43d Street, New York

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Vol. X.

DECEMBER, 1910

No. 12

## EDITORIAL DEPARTMENT

### CO-OPERATION IN MEDICINE.\*

THE conditions which confront the physician to-day are very different to those which he had to meet a quarter of a century ago. Not only has his environment totally changed, but the science and art of medicine have been almost transformed. The practice of medicine which we know is vastly more complex and difficult than that of our fathers. A student to-day has to expend more than twice the capital in time and money which his preceptor did before he is ready to earn his living as a doctor of medicine. Nor is it possible for one man to be an expert in all the various arts which medicine now calls to her aid. Contrast the laboratory work of our student days and that which is necessary to the physician of to-day. The analysis of urine and the recognition by the microscope of the different varieties of casts and urinary sediments was absolutely all that was taught twenty-five years ago because nothing more was known at that time. Now a knowledge of bacteriology is obligatory both for diagnosis and treatment. It is necessary for the practitioner to be able to stain and recognize the tubercle bacillus, both in sputum and urine, by no means an easy task without the aid of considerable practice. Infections are now classified according to the infecting organism, and diagnosis and treatment depend on its proper recognition, yet vaccine therapy is but in its infancy and we may confidently look forward to an entire

change in our whole system of therapeutics, as our science advances in the knowledge of immunity and its artificial production. Our instruments for diagnosis have increased in number and delicacy. Some of them can only be profitably used by the expert. Take, for instance, our methods of blood examination. They are most valuable when made by the experienced hand, but worse than useless when made by any one but an expert. We cannot for that reason abandon so valuable a diagnostic aid. We require the aid of the bacteriologist and pathologist to determine whether or not we are dealing with a case of tuberculosis, leprosy, typhoid fever, cholera, plague, actinomycosis, syphilis, malarial fever, malignant disease. Without their aid we might wander in the dark for days before we could make a diagnosis. Otherwise valuable time would be lost, which might result in the death of the patient and the spreading of a dreadful epidemic among the people. But the recognition of these different diseases by the microscope and by cultural tests, requires special education and experience which a busy general practitioner cannot acquire in the rush and hurry, the irregular hours, and constant interruptions which accompany his work. It is absolutely necessary for him to depend on someone else for most of this work. It has been customary with some men to send specimens to wholesale drug houses and get this work done where some lazy doctors get their remedies, but I am talking about co-operation in medicine, and if you recognize the need for co-

\* An address to the Suffolk County Medical Society, October 27, 1910.

operation you must admit that you are not helping the members of your profession who are specializing along these lines by sending your work to drug houses at cut rates. If we are going to practice scientific medicine, modern medicine, exact medicine, we must use scientific methods, modern methods, exact methods. In every community, therefore, there ought to be some man who is willing to devote a part of his time to the class of work I have indicated, and his brother practitioners must be willing to co-operate with him, send for him when they need a blood examination for instance, and see that the patient pays a reasonable if not an adequate fee for the services, since it is the patient after all who benefits. We cannot do our duty by our patients to-day without co-operation. If there is one thing which is the curse of the medical profession to-day, our stumbling block, the barricade which we ourselves throw up against progress, it is the petty jealousies which we cherish and the narrow meannesses which we practice against each other. The future of medicine lies in team work and we cannot have team work in a community wherein every man suspects his neighbor, wherein every man's hand is against his neighbor, seeking to take advantage by fair means or foul.

Your president, in his circular letter concerning this meeting, stated that I favored the "Trades Union idea." That depends on what you mean by the term. I do not favor the tyranny of the trades union. I do not favor the unfair and arbitrary restrictions of the trades union. I do not favor the boycott or anything resembling it. These are the things which make the name of trades union offensive to the educated professional man. What is there about the trades union, however, which is good? What is there which has really benefited the working man and emancipated him from the grinding tyranny exercised by those great masses of capital which we call corporations. Is it not loyalty to one another? Is it not co-operation? Is it not the willingness sometimes to suffer loss lest another should be injured. No one can object to loyalty. No one can object to mutual and just co-operation under the law. These are the things which I admire in the trades union. These are the things which I wish to see held of good report, worthy and honorable and to be desired, by the medical profession.

I have said that we need co-operation in medicine if we are to take advantage of the vast resources which modern science offers us for diagnosis and treatment since it is evident that no one man to-day can become accomplished in all these arts. I have also pointed out that we shall deprive our patients of their rights and fall short of our full duty to them, if because of mutual suspicion or distrust we fail to give them the advantage of a colleague's special skill which has been the result of special study and training. These considerations concern the welfare of the patient. Let us also consider those questions which relate to the welfare and honor of the physician, for the two things are intimately connected.

As a profession, I believe to-day we are in need. The average income of the doctor to-day is not sufficient for his necessities. Society requires him and his family to be well educated, well dressed and well housed. If these demands of society are not satisfied the income of the physician suffers, because he and his do not make a good appearance. Much more is demanded of the doctor by the public to-day than formerly. Yet, at the same time that the State has increased its requirements entailing a larger outlay of time and capital upon the doctor, it has diminished his revenue by putting irregular competitors in positions of advantage. Thus within the past three years we have seen the osteopaths and the optometrists recognized as authorized practitioners of the healing art. We have all suffered from the competition of the graduates of Dr. Sill's Institute at Kirksville, Mo. The ophthalmologists, I am told, are feeling the competition of the optometrists who go gaily about their work under the protection of the State, refracting glaucoma and constantly committing similar absurdities. All these things help to cut down your income and mine. I need not say that we ourselves have cut down our incomes materially by the advances of preventive medicine. But there is a further and most important factor which we must deal with in considering the economic problems which confront us and that is the decrease in the purchasing power of the dollar. The cause of this decrease does not concern us to-day. The undoubted fact confronts us that it costs us twice as much to live as it did ten years ago, yet our fees have remained the same. It is thus increasingly difficult for the average physician to maintain and educate his family and yet lay by

something for his old age. How many of you have been able to save enough money to live on, if your health failed you to-morrow? How many of you would leave your wives in reasonable comfort if you died to-morrow? These are serious questions and your president asks you all, "What is to be done?" The only possible answer is "co-operation." Not alone for scientific reasons, but for mutual protection as well. I tell you we *must* co-operate, otherwise you will see the profession in this country brought to the same poverty and destitution which prevail in some parts of Europe. Only a year or two ago two doctors fought a duél over the question of fees. One man wanted to raise the fee from six to seven kreutzers. Now, a German kreutzer is about two-thirds of a cent. Do you think you are so far from that stage of descent? There are lots of men on the east side of New York and in the Brownsville district of Brooklyn that get 25 cents and less for their services. What do you think of lodge practice at 10 cents per head per year? What do you think of medical service companies which contract with the householder to furnish him with medical service and medicines at a small and fixed price per year? All these evils are not coming upon us. They are here. The lodges and the medical contract companies harm both the city doctor and the men in Suffolk County. I believe that the safety of one is the concern of all, and that until the profession at large wakes up to this fact, that things are going to get steadily worse from the financial standpoint. There have been a number of remedies offered for the condition which we all recognize which I may briefly mention. We are told that we should charge for making out certificates for insurance companies; that we should charge extra for physical and pelvic examinations. Many of us do this already. We are told that the surgeon should leave his patient after operation in the care of the general practitioner who may know little of the after treatment of the case. Many of us do that when we feel that we can do so with justice to the patient and we are sometimes disagreeably disappointed. None of these shots really hit the mark. The remedies suggested are but partial and inadequate at best, and deal with only a small percentage of the doctors' income. Most of our money comes from the general run of house visits and office calls, and these suggestions which have been made would not, if carried out, affect 10 per cent. of your

income. I am frank to say that it is my belief that the only real remedy is a general agreement on your part to raise prices to a figure which will balance the increased cost of living to ourselves. It is a simple business proposition, a condition not a theory which confronts us. We may well ask ourselves how to meet it. What is the inexorable logic of the situation. The wages of almost all artisans, engineers, firemen, and trainmen have been advanced. The farmer is to-day getting more for his products. The butcher, the baker and the grocer are charging us more for our supplies, but we continue to charge all these people at the same rate, although their earnings have increased and our expenses. True, their expenses have also increased but so have their earnings. They have been wiser than we. They have co-operated to raise their own wages. The corporations have co-operated to increase their dividends, but the doctors do not seem to be possessed of business intelligence sufficient to recognize that unless they also co-operate that they must be ground between the upper and the nether millstone of capital and labor. If we co-operate the beneficiaries of the corporations will call us a trades union, and the beneficiaries of the trades unions will call us a trust, but if we allow ourselves to be intimidated by the calling of names on the part of people who have themselves profited by co-operation we shall continue to be victimized by both parties. At public dinners, such as I attended lately, in honor of a medical man of distinction, the laity say all sorts of beautiful things about our self-sacrifice and our nobility, but when it comes to paying us what the trades unions call a fair day's wage for a fair day's work, then the public waxes wroth at the exaction of the doctors and leagues for medical freedom are formed and there is much loud and loose talk about a medical trust. I hope and believe that the time will never come when as a profession we shall turn a deaf ear to the cry of the poor. We can never make an agreement to maintain a fixed and higher price to every patient, because the poor are always with us. There is not a man to-day within the sound of my voice who has not medical pensioners to whom he either never sends a bill at all, or at most one that is nominal only and these pensioners are altogether apart from dispensary and hospital practice in which most of us take part. We always must and always shall be willing to incline our hearts to fulfill the law of love to our neighbor

but we owe something to ourselves and our families and it is right to ask that part of the public which has profited by the general rise in wages and income to recognize that it owes the members of the medical profession a share in its prosperity. The expense of living cannot go on increasing and the fees of the medical man remain where they are if the medical man is to survive. That is a question of simple mathematics. We have never been good business men. We have never sufficiently recognized that there is a business side to medicine as well as the scientific. Compare the attitude of the public to the lawyer doing city work and the doctor similarly engaged. The assistant district attorneys in New York receive \$7,500 per year for their services; the deputy assistants, from \$2,000 to \$4,000. Compare these salaries with those of the medical profession engaged in the Department of Health. The assistant superintendents, giving their whole time to the work, receive less than half the sum paid to the lawyers, \$3,500. The superintendent of the research laboratory is paid but \$3,000, while the medical inspectors of the department range in salary from \$1,200 to \$2,500 per year. Does it not seem that there is room for equalization here between the two professions? Why should the city pay the lawyer handsomely and the physician a mere pittance? It is partly our own fault and we shall continue to be exploited and unjustly treated until we get together and stand together. It is all very well for speakers at public dinners to pat us on the back and tell us what fine fellows we are, but fine words butter no parsnips, pay no rent, nor butcher's nor grocer's bills. I yield to no one in my admiration for altruism and self-sacrifice, but there is a point when altruism means injustice to our wives and children and where self-sacrifice may mean the next thing to suicide. We must realize the economic situation which confronts us, the increased cost of living, the increased and licensed competition of quacks, the increased cost of our education, and that we can meet these conditions in but one way, the only logical way, by raising our fees, or we shall be confronted with conditions more serious than those we now face. No one blames the railroads for raising rates, when they can show that expenses of maintenance and construction have increased so that they cannot meet these expenses much less pay dividends without raising rates. Why then should we hesitate to be at least as wise as a railroad rate maker? The same conditions confront us. What are the dividends to which we are entitled? We are en-

titled first to a reasonable return on the time and money which our education cost us. We are entitled to a dividend on our capital which will maintain us in reasonable comfort, enable us to educate our families properly and lay by a reasonable sum for our old age. Are we getting these dividends? As a class are we able to do any of these things? These are the questions which should be discussed to-day. If the conclusion be reached that we are not making income and outgo even equal, then it is for you to say whether there is: first, any logical remedy save an increase in the fees, and second, whether the key to the whole situation is not the question of personal loyalty to each other. No agreement as to the necessity of a change is worth anything if honorable competition is to degenerate into underhand and disgraceful attempts to get the better of one another by sneaking and secret methods. The propositions which I wish to lay down are as follows:

1. We are not getting a reasonable return on our investment.
2. Most of us are unable to adequately provide for the future.
3. These conditions are due to the increased cost of living which has not been balanced by an increase in our fees.
4. No agreement to make our fees uniform to all persons ought ever to be made, because individuals and families differ in their ability to pay. We shall always have to take care of the very poor for nothing, the poor for very small fees, and the moderately well to do with special rates when circumstances demand special consideration.
5. We should, however, raise our fees to those who have themselves benefited by the advance in wages or the prices of the commodities in which they deal.
6. Let us reflect that as a profession we are deficient, if not destitute, in personal loyalty and engaged in a destructive competition long since abandoned by wise men in other avocations. Also, that if we do not mend our ways, worse things will happen to us than now threaten us.
7. Finally, that as a profession we must never turn a deaf ear to the cry of distress. Never refuse to consider the claim of poverty on our charity and ever be willing to suffer wrong, if necessary, rather than surrender the high ideals which have guided us these many years. I believe, however, that by loyalty to each other and a reasonable and just attention to the economic conditions which confront us that we can put the profession on a sounder business basis without surrendering the legacy of our fathers or forfeiting our claim to the respect of the community. A half starved doctor with a half starved family loses half his ability for public service and more than half his efficiency.

A. T. B.



## Original Articles

### THE CONTROL OF TYPHOID IN THE ARMY BY VACCINATION.\*

By Major F. F. RUSSELL, M.D., U.S.A.

TO those familiar with military history it will scarcely be necessary to point out the necessity for some method of preventing typhoid in addition to what we have had up to a comparatively recent period.

In the Spanish war we had no less than 20,738 cases, with 1,580 deaths, out of a total strength of 107,973 men; 19.26 per cent., or 86.24 per cent. of the entire mortality of that war. At its conclusion, Walter Reed, Victor C. Vaughan and Edward C. Shakespeare were constituted a board of officers to investigate the causes of the extensive prevalence of typhoid fever in the various military camps within the limits of the United States. In 1900 they submitted the most complete study of the epidemiology of typhoid which has ever been published.

The board states its belief, "that with typhoid fever as prevalent as it is in this country, the chances are that if a regiment of 1,300 men should be assembled in any section, and kept in a camp, the sanitary conditions of which were perfect, one or more cases would develop." The disease prevailed generally as a series of company epidemics, each one of which had its individual character. One of the most important findings was that a regiment of troops did not lose the infection by changing its station; the disease was carried from place to place by the men, in their bodies, on their clothes, bedding or tentage. In 1900 nothing was known of chronic bacillus carriers, although the board approached very near to their discovery in making this last observation. Another conclusion of great importance was to the effect that when a command is thoroughly saturated with typhoid it is probable that from one-fourth to one-third of those exposed to infection will be found susceptible. We know that in some regiments of 1,300 men there were over 400 cases.

In the Boer war the British had 31,000 cases with 5,877 deaths. The tremendous morbidity due to this disease was a very serious handicap to the combatant force in carrying out the plan of campaign.

In the Franco-Prussian war there were 73,396 cases with 8,789 deaths among the Germans alone. In fact, 60 per cent. of their total mortality was due to this disease. History tells us that during the Civil war there were over 80,000 in the Northern army.

The excessive prevalence of the disease among armies is not limited to times of war for we find that under certain conditions it may decimate

troops during peace as well. In India, for example, the disease is present among the English troops to a very great extent, although there has been a continuous diminution during the last few years. The number of cases per 1,000 ranges from 36.3 in 1898 to 8 in 1909.

The records show that among the garrisons in the United States there is in time of peace, very little typhoid; in fact a comparison of our rates with those of the registration area of the United States as given by the Census Reports will show that we have about one-half as much as among that portion of the civil population which is of military age. In other words, a man who enlists in the army and serves in a garrison in the United States is only about half as liable to become infected as if he remained at home.

Until we compare the death rates from various countries it is difficult to realize the extent to which we suffer from the disease in this country. The Census Bureau gives the figures for the registration area of the United States which comprises only seventeen of the forty-six states of the Union. This area has probably less typhoid than is found in the non-registration area, since it consists almost entirely of northern and northwestern states. Yet we find the death rate for 1907 was 30.3 per 100,000 population. The rate for the entire country is estimated by Lumsden at 46 per 100,000, which would give an annual incidence of about 400,000 cases. There are very few countries which exceed us in the amount of typhoid and it is not flattering to find we rank so low in the list of civilized communities. Western Australia has a rate of 46.6, Ceylon, 194.6, Finland, 157.2, Spain, 34.8, United States, 30.3, the German Empire, 6.3, Great Britain, 8.3, Norway, 5.5. "From 1901 to 1905 our death rate for this disease was nearly three times as high as that of England and Wales, or Scotland, and over twice that of Ireland. It was double that of such a thickly settled country as Belgium and over four times as large as that of the German Empire."

As a nation we are, therefore, notorious for the excessive prevalence of this preventable infectious disease. During the last year for which statistics are available, 1908, we find that the rate has fallen from 30.3 to 25.3, so that the mortality has dropped appreciably during the past year, but it remains, nevertheless, excessively high for a people who aspire to stand in the front rank of cultured nations.

So long as troops remain in garrisons we see that there is very little cause for complaint, the trouble begins when they are sent out for maneuvers, police duty or mobilization for war. The adverse effect of sending them into the field is shown by the rise in the typhoid rate which occurred as soon as troops were ordered to Cuba for active service in 1906. The admission rate that year for the United States was 5.66, yet the same troops suffered to the extent of 57.88 per

\* The Wesley M. Carpenter Lecture of the New York Academy of Medicine, read before the Academy October 20, 1910.

thousand during the first year in Cuba, and 9.27 in the second year as compared with a rate of 3.53 in the United States. It will be remembered that we had no war in Cuba at that time; the army was there merely to exert a moral influence for peace, yet the conditions of camp life under which they were compelled to live immediately increased the rate from 5.66 to 57.88.

An increase in the amount of typhoid will occur as the troops leave their well-kept garrisons to serve in the field; this is the condition which we must expect and be prepared to prevent. The Cuban expedition was a small one, of less than 5,000 souls, and it moved from one country to the other without undue haste or lack of preparation, yet as we have seen, the typhoid increased tenfold.

In time of war the conditions are very different; many of the sanitary safeguards with which the troops are ordinarily surrounded are left behind and the maintenance of the health of the army ceases to receive as large a share of attention as it does in garrison. During the actual campaign everything must be sacrificed to the attainment of victory and sanitary measures may conflict with the principles of strategy.

As has often been said, the army does not go to war for its health and death and disease which are ordinarily preventable may not be so easily avoided if the army is to accomplish the purpose for which it is organized. The very fact that the well-known precautions against typhoid may be quite impossible of execution enhance the value of anti-typhoid vaccination. In active campaigns it is impossible to count upon obtaining labor or materials for piping water or building temporary sewer systems or constructing incinerators for the burning of excreta or crematories for the destruction of garbage. The troops may be needed to the very last man for the fighting line, for the construction of intrenchments and fortifications. We must have the kind of protection requiring the least labor and time to make it effective, and which will last during the comparatively short life of the campaign.

There is nothing which answers these requirements as well as anti-typhoid vaccination, since this measure, by increasing the resistance of the individual to infection, operates under all conditions and at all times, no matter how adverse the circumstances.

The measure is simple, easy of execution and affords protection when all else fails. It offers not only the best but practically the only way of keeping within reasonable limits the epidemic typhoid which is otherwise sure to occur. In the Spanish war some regiments of 1,300 men had as many as 400 cases of fever; it goes without saying, such organizations were a serious hindrance to the army of which they formed a part. If by means of this measure we can reduce the morbidity it will mean all the difference

between a regiment which is worse than useless and an effective one.

In reviewing the history of anti-typhoid vaccination, it is rather surprising to learn that it dates back to the dark ages of our knowledge of immunity and that Pasteur's success in immunizing animals against anthrax led several investigators to the immunization of laboratory animals against typhoid. As early as 1886 Frankel and Simonds found that several small non-lethal doses of typhoid bacilli would protect rabbits against subsequent fatal doses. In the same year Beumer and Peiper immunized mice with potato cultures of typhoid and by using small but increasing doses they were able to give definite protection against a subsequent fatal dose. They suggested the use of sterilized cultures for the immunization of men but made no investigations themselves. Chantemesse and Widal, Sanarelli and others reported work on animals of the same character, but as practically nothing was then known of the toxin of the typhoid bacillus nor of the nature of typhoid immunity, little or nothing came of the work. In 1892 Brieger, Kitasato and Wassermann showed that it was unnecessary to use living bacilli since killed cultures were equally effective and that the immunizing substance was an integral part of the body of the bacillus. Broth filtrates, which had been used to some extent up to that time were effective only in so far as they contained particles of bacterial cells.

All of the earlier work on animals was quite incomplete and unsafe as a guide in the immunization of man, as at that time there was a way of detecting changes in the blood serum after inoculation and consequently no way of knowing that protection had been conferred. It was not until 1893 and 1894 that Pfeiffer, working with Wassermann, Kolle and Isaëff discovered the nature of the immunity in cholera and typhoid and at the same time elaborated a method of measuring its quantity. They recognized that the character of the immunity and its degree depended upon the presence of bacteriolytic immune bodies in the blood serum, and the test formulated at that time has since become classic under the name of the Pfeiffer phenomenon. It is made by inoculating a series of guinea-pigs intraperitoneally with fatal doses of cholera or typhoid mixed with diminishing quantities of immune serum, and examining the peritoneal exudate for signs of degeneration in the bacteria. If they are dissolved and the pigs live the phenomenon is present; if the bacteria are not attacked the pigs die and the test is negative. Until the discovery of agglutinins and later of opsonins the entire fabric of proof of the efficacy of immunization depended upon the demonstration of bacteriolytic amboceptors in the blood serum. The results obtained by this test proved conclusively in both animals and man the possibility of producing a high degree of im-

munity against typhoid by the use of killed cultures.

The first actual immunization of men for the purpose of protecting them against typhoid was made by Pfeiffer and Kolle in 1896. They immunized two men and investigated the specific changes in the blood serum thoroughly and exhaustively. They showed that not only were agglutinins produced, but what is more important, that the bacteriolytic power of the blood was also raised in the same way as during an attack of typhoid. So far as is known at present, we have then, the same anti-bodies produced as the result of inoculation as are produced during clinical typhoid, and the quantity of agglutinins, bacteriolysins and opsonins seems to be even greater after vaccination than after clinical typhoid, and it is therefore, not unreasonable to expect that the immunity conferred by vaccination will last for a considerable period. This is a question which can only be answered by statistics and it may be some years yet before any one will be in a position to answer it definitely.

Sir A. E. Wright, who, in 1896 was connected with the medical corps of the British army, injected killed typhoid bacilli into two men, a few weeks before Pfeiffer and Kolle, but the inoculations were apparently made in the course of an investigation on the coagulability of the blood since he reported no studies of the specific changes in the blood. In the next year, however, he published the results of anti-typhoid inoculations upon eighteen men and became convinced by this experience that the method was practicable and that it gave sufficient protection to make it worthy of adoption in the army.

Soon after this, in 1898, Wright introduced prophylactic inoculation into the British army in India with results which were on the whole very good and encouraging. He used broth cultures which had been incubated for three weeks and then killed by heating to 60 C. for one hour. The size of the dose was determined by tests on animals; the quantity necessary to kill a small guinea-pig being used as the immunizing dose for men. When typhoid became epidemic in South Africa during the Boer war, the approval of the War Office was given Wright's recommendation for controlling the disease by vaccination. Some of the men were inoculated before leaving England, others on the transports and many more in the field. Some 400,000 doses were furnished and it is supposed that 100,000 men were inoculated. No complete statistics have been published, although Wright collected some figures which cover the returns from 19,069 men. He considered the incidence of the disease to be diminished about one-half and the mortality even more. As you may remember, even this very extensive trial of prophylactic inoculations in South Africa failed to give convincing results and many of the medical profes-

sion remained skeptical of the value of the procedure. The reports from different military organizations were widely at variance with one another as at times the inoculations seemed to give good protection and at other times no good effects were noted. The situation was difficult to explain if one accepted the statistics. The collection of statistics in time of war is difficult at the best and it seems that many of the soldiers confused the vaccination against smallpox with the typhoid inoculations so that the usual explanation, until quite lately, has been that the statistics were faulty. The first explanation that has been at all illuminating has been given quite recently by Sir William B. Leishman of the Royal Army Medical Corps. He was associated with Wright in the Army Medical School at Netley, and the actual preparation of almost all of the vaccine used in South Africa fell to him. He now believes that, "the methods then employed in the preparation of the vaccine may have resulted in considerable variations in its vaccinating efficiency. Some men may have received but slight and transient immunity, while others were protected in as high a degree as the system was capable of."

At the close of the South African war in 1902, the lack of agreement as to the value of anti-typhoid vaccination led to a suspension of its use in the army and several commissions have since been appointed to study the problem.

Three reports have already been made and all of them have been favorable to the use of prophylactic inoculation; the procedure has been reintroduced into the British army in India and during the past few years the anti-typhoid vaccination campaign has been actively pushed.

In order to understand the variation in the amount of protection obtained at that time it is necessary to consider, for a moment, the manner in which the vaccine is prepared. Wright's original method consisted in growing the bacillus in broth for three weeks and then sterilizing the cultures by heating them to 60 C. in a water bath for one hour. The time of incubation was afterwards shortened to two days. This method apparently worked well so long as only small quantities were needed, but when larger batches were to be made, several quarts at a time, Wright devised an ingenious paraffin thermometer which was placed inside of each culture flask. It consisted of a bulb and tapering stem and the latter was filled with paraffin with a melting point of 60 C. As the contents of the flask reached that temperature the paraffin melted and the bulb, which up to that time had acted as a float, filled with culture and sank to the bottom of the flask this marking the beginning of the hour's exposure to heat. While this contrivance should have worked according to the plan, as a matter of fact, it often failed and it is now believed that much of the vaccine was overheated. Subsequent experiments by Leishman and his

students have shown that a typhoid vaccine may be greatly weakened by too great heat. At the present time Leishman heats his vaccine to 53 C. for one hour.

The observation that some of the vaccine used by both the English and the Germans in the earlier work may have been overheated during the sterilization and thus weakened, gives the best explanation so far offered of the occasional unsatisfactory results obtained in South Africa. There is now no difficulty in obtaining a uniformly good and potent vaccine.

Following the Boer war the next extensive use of anti-typhoid vaccine was in the German Colonial Army in Southwest Africa during the Hereros campaign from 1904 to 1907. In 1904 the number of typhoid cases among the troops was 226 notwithstanding the fact that all the usual hygienic measures which it was possible to carry out were used and the medical officers were given an unusual amount of authority and means to fight the disease. The failure to control the disease in the beginning is all the more remarkable since our Spanish war experience and the prevalence of typhoid during the Boer war were such recent events as to invite especial attention to the necessity for elaborate precautions.

The military authorities laid the matter before Prof. R. Koch who advised the use of prophylactic inoculations. As a result of this change of policy the number of cases fell from 226 in 1904 to 43 in 1907. It is not fair, of course, to credit the vaccination with the entire reduction in the yearly rate since the number of immune persons was constantly increasing, but it is quite logical to believe that the vaccination was the greatest factor in reducing the morbidity.

The results obtained in German South Africa have been published by Kuhn. As the medical records are complete and were most carefully kept they give us excellent data upon which to base an opinion as to the value of the protection given by artificial immunization.

The troops in this campaign belonged to the so-called Colonial Army, having been recruited in Germany and sent out to Africa in transports. Before the journey began they were informed of the presence of typhoid in the colony and of the measures taken to limit the extent of the disease and opportunity was given them to be vaccinated. The troops in the expedition numbered 16,496 and of this number 7,287 volunteered. The vaccinations were carried out as far as possible in Germany before the sailing of the transports, though additional vaccinations were made during the voyage and in the field after the arrival of the troops in Africa.

The vaccine was prepared according to the method of Pfeiffer and Kolle, which will be described, and as the dosage of this preparation is rather large as compared with that used in the English and American armies we find the reactions were correspondingly severe, particularly

after the first dose. Seventeen per cent. suffered from nausea and vomiting and 2 per cent. had temperatures of 104 degrees F. and over and in many cases the malaise was prolonged for forty-eight hours. The symptoms after the second dose were less marked while the third dose was followed by little or no reaction.

Among the 16,496 men in the expedition there occurred 1,277 cases of typhoid, and a study of the distribution shows very clearly the undeniable advantages of prophylactic inoculations, even though the results are not nearly so good as have since been obtained in India and in our service. Among the uninoculated the percentage of cases was 9.84, while among the vaccinated it was only 5.09 or about half as many. But even this does not give an adequate idea of the benefits to be derived as the fever when it did occur among the vaccinated was distinctively milder, as Dr. Kuhn shows in the following table:

		Uninoculated.		Inoculated.
Light cases	..... 331	36.55%	186	50.13%
Moderately severe	.. 225	24.85%	96	25.88%
Severe	..... 234	25.80%	65	17.52%
Fatal	..... 116	12.80%	24	6.47%
			100.00%	100.00%

The number of cases tabulated is so large that there seems little chance of erring in drawing conclusions and we may reasonably expect to obtain the same favorable results in the future. One may briefly summarize by saying that there was a reduction among the vaccinated of one-half in the number of cases; a much higher percentage of light attacks, fifty to thirty-six, and a much lower percentage of fatal cases, 6.4 to 12.8.

The Germans have made it a practice from the start to give the vaccine in three doses and the following table has been arranged to show the amount of protection obtained by those receiving one, or two, or three, doses:

	Inoculated.	Once.	Twice.	Three times.	
Light cases	..... 31.72	48.93	19.35	100%	
Moderately severe	... 23.95	48.06	27.09	100%	
Severe	..... 41.54	43.09	15.40	100%	
Fatal	..... 58.33	33.33	8.33	100%	

The table shows that nearly 60 per cent. of the fatal cases occurred among those receiving but one dose, 33 per cent. among those receiving two doses and only 8 1-3 per cent. of the fatalities were found among the men who had been thrice inoculated.

It will be noted that even one dose protects to a considerable degree, but to obtain the full protective value of the vaccine it is necessary to give two and if possible three doses.

Among the uninoculated there was one death in every 7.8 cases; among those receiving one dose there was one death in every 8.9 cases; among those receiving two doses there was one death in every 21.9 cases, while among those receiving three doses there was one death in every 36.1 cases.

Dr. Kuhn concludes that the immunity is largely lost after one year for the reason that infections occurring after that length of time show the same percentage of moderately severe, severe and fatal cases as among the uninoculated. Even should this opinion be confirmed it would constitute no objection to the procedure, at least for the military service, since it would be comparatively simple to revaccinate annually during the course of a campaign.

The history of anti-typhoid vaccination can be roughly divided into two stages: the first period includes the early experimental work of Pfeiffer, Kolle and A. E. Wright, and Wright's immunization of 4,000 men of the British-Indian army, the Boer war and the German campaign against the Hereros. The results of the work done during this period while very good were not as unequivocal as could be wished and the entire work practically ceased in England owing to the great amount of adverse criticism arising out of the experiences of the Boer war. It is but fair to state that much of the reluctance to continue the vaccination was due to a very exaggerated idea of the importance of the negative phase. This expression we owe to Wright, who believed that the body lost some of its normal protective agencies during the reaction following immediately after the administration of the vaccine, and that in this short interval the man was in a condition of increased susceptibility to natural infection. It has now been shown that such fears are groundless, but for a time this idea presented an almost insurmountable obstacle. Wright believed this danger to be so real that he advised against the administration of the vaccine to men who were about to enter endemic areas. With the dosage now in use we see no evidence of any negative phase.

The second period is the present one beginning in 1904, with the work of Sir William B. Leishman and his students. He was a member of the commission appointed at the conclusion of the Boer war to investigate the whole question of prophylactic vaccination; he made elaborate experimental researches at Aldershot with results so gratifying that the practice was re-introduced into the English army in December, 1904.

One of the most important findings of this commission relates to the keeping qualities of the vaccine, that is to the time after its preparation during which it will give efficient protection. A vaccine, prepared a year previously had been sent to New Zealand and when examined upon its return to London was found to have lost much of its power as compared with a preparation recently made from the same culture. An experiment was arranged to test the value of this observation by examining three vaccines which were identical except as to age; it was found that one prepared six months previously had lost much of its immunizing power; the

three-months-old vaccine was found on the contrary to be just as effective as one freshly prepared. This observation also helps to explain some of the unsatisfactory results during the early days of the work, especially at the time of the Boer war as the vaccine was then believed to be potent for a period of two years. It was also learned that the antiseptic which is added to every vaccine as a safeguard should not be added while the suspension of bacteria is still hot from the water bath used to kill the culture. Two batches which were prepared in this way were found to be practically inert when tested on animals.

The method in use at the present time has been described by Leishman. The culture employed is an old, non-virulent strain, which was isolated from the spleen at autopsy many years ago. It grows well and gives the typical typhoid reaction on all the usual media, and when injected into animals and man it produces antibodies in large quantities. On some grounds a virulent strain might be expected to produce a higher degree of immunity than an avirulent one, yet the researches of Wassermann and Strong have shown that virulence may not be coupled with the ability to produce large quantities of anti-bodies, and that an avirulent strain may really give rise to a higher degree of immunity than a virulent, freshly isolated organism. In this matter we are, of course, compelled to judge of the degree of immunity by the results of serum examination and it is probable that we may have in the future additional methods which might show quite different results from those obtained to-day.

In order to determine whether a virulent strain might not give better results Leishman prepared two vaccines; one from a non-virulent stock culture usually employed in making the regular vaccine and the other from a recently isolated strain which possessed considerable virulence for guinea-pigs. The vaccines were prepared in the standard way and were identical except as to the sources of the culture; they were administered to groups of three rabbits each in the same dosage and the serum of each group was pooled and examined. The dose given to each rabbit was calculated according to the body weight and as a rule was about 1-25 of that given to a man of average size. By using small doses it was expected that variations would become apparent which larger doses might have obscured. In this experiment when first made there appeared to be a slight difference in favor of the vaccine prepared from the virulent strain, but upon repeating the experiment no difference was apparent. He has, therefore, continued to use the non-virulent strain for the preparation of all vaccine used in the immunization of troops.

One very valuable point did, however, come to light and that was that a vaccine prepared

from a virulent culture gave rise when injected into men, to much more severe general and local reactions than those usually obtained. This is a matter of considerable practical importance since it has been realized from the beginning that any measure to be of value among volunteers from the army or from civil life, must not be too disagreeable. There is a real need for further research on this question, for on theoretical grounds, it would seem that a vaccine made from a considerable number of different cultures of typhoid might give better results in practice than one made from a single, old laboratory culture.

Leishman uses bouillon on which to grow the bacillus and finds the medium convenient and satisfactory to handle. Large, flat-sided bottles are used for culture flasks and only enough bouillon is placed in each to give a layer of about one-half inch deep when the flasks are laid on the side. The bacilli are thus provided with an abundance of oxygen and they grow rapidly so that at the end of about forty-eight hours each c.c. of the fluid contains from 1,200,000,000 to 1,400,000,000 bacteria. The vaccine is killed by heating in large Florence flasks, in a water bath at 53 C. for one hour. It has been shown that the thermal death point of typhoid bacilli is considerably lower than was formerly believed and if the cultures are grown in an incubator accurately regulated for 37 C. the bacteria can be killed by an exposure to 53 C. for one hour.

The emulsion is standardized, in order to have a uniform dosage, by counting the bacteria according to a method which has been modified from one devised by Sir A. E. Wright. His original method was carried out by mixing equal quantities of normal human blood and the emulsion to be counted. Small drops of the mixture were spread on slides, stained, and counts of both the red cells and the bacteria were made in a large number of different microscopic fields. Since we know that normal human blood contains approximately 5,000,000 red blood cells to the cubic millimeter it is easy to calculate the actual number of bacteria from the ratio between the two. While this very ingenious method of Wright may sound rather complicated it is in practice easy to carry out and gives surprisingly accurate and consistent results. The only objection being that some of the more delicate bacteria undergo lysis during the short time of contact with undiluted, normal serum. They may fail to take the stain which is subsequently used and the preparations do not show the full number of bacteria present. Major Harrison, of the Royal Army Medical Corps, has modified Wright's method by washing the blood cells free of their serum in sodium citrate solution before adding them to the bacteria. The serum having all been removed from the mixture of blood and bacteria, it cannot be dried and stained on a slide in the usual manner, consequently the red

cells and bacteria must be counted in fluid preparations. The ratio of bacteria to red blood cells is not disturbed by the washing of the latter since the quantities are equal at the beginning of the process. For the actual counting it is necessary to prepare very thin films of the fluid with ordinary slides and cover glasses, using a 1-12 oil immersion lens and a high ocular.

If the bacilli be actively motile, making counting difficult, a trace of formalin may be added to the emulsion which quickly destroys all motility without otherwise injuring the bacilli for counting purposes. It is found that the counts of bacteria obtained by this modified method run a little higher than with the original method of Wright, and they are believed to be more accurate. The counts obtained from broth cultures of the typhoid bacillus after forty-eight hours incubation at 37 C. run from 1,200,000,000 to 1,400,000,000 bacteria to the cubic centimeter, hence the stock culture must be diluted with broth or physiological salt solution until one c.c. contains approximately 1,000,000,000 bacteria. To the standardized emulsion is added  $\frac{1}{4}$  per cent. of lysol. It has also been found that freshly prepared vaccine is much more apt to give rise to pronounced local reactions than older products and consequently none is issued which is under three weeks old. It is put up in glass ampules which are sealed in the heat of a blast lamp. Each container is labeled with the name and number of the product and given a date three months from the time of its preparation, after which it should not be used.

It is administered at about four o'clock in the afternoon, rather than at any other time, since the general reaction, if it be well marked, will come on about bed-time and be practically over by morning. The men are cautioned not to drink on the day the vaccine is administered as alcohol seems to increase the severity of the symptoms, particularly the headache and the malaise. The site for the inoculation is the upper arm at the insertion of the deltoid, where the subcutaneous tissue is usually abundant and the skin is freely movable on the underlying tissues. Formerly the inoculations were given in the flank, but experience has shown that the swelling is often greater than in the arm, and the pain may be considerable and cause real discomfort as it is more difficult for the patient to immobilize the flank than the arm.

The results obtained in the English service have been published from time to time and the substance of the latest statistics as reported by Sir W. E. Leishman is given in the following table:

Results obtained in twenty-four regiments of English troops in India.

Total strength	
At beginning of observation .....	18,433
At date of last report, August, 1909.....	19,314

	Inoculated.	Noninoculated.
Number at the beginning of observation .....	6,815	11,668
At date of last report.....	10,378	8,936
Cases of typhoid.....	56	272
Deaths from typhoid.....	5	46
Case incidence per 1,000....	5.39	30.4
Case mortality per 100.....	8.9	16.9

The period of observation varies from three and one-half years in the first regiment to four months in the last.

They are pushing the vaccination actively and are quite enthusiastic over the remarkable diminution in the disease among European troops during the past year. In India it has now come to the point where inoculation against typhoid has become distinctly popular with the laity, and the English authorities are to be congratulated on the admirable judgment they have shown during the long and difficult campaign of education. Regiments in which less than half the personnel is unprotected against typhoid are not considered by the higher military authorities as properly prepared for field service. Since it is the ambition of every soldier to be ordered to the front, and as such an order is now somewhat conditioned on his being vaccinated against typhoid, there is no dearth of volunteers. Many regiments have nearly 100 per cent. of their personnel vaccinated, and most have over 50 per cent.

The broth vaccine just described is comparatively easy to prepare even in large quantities; the standardization and tests for sterility are not difficult, and with reasonable care it may be prepared in almost any laboratory. So far as the military services are concerned there are some good reasons for preparing it all in some central laboratory in order that an even, regular product may be had which will always be reliable. All of the vaccine so far used among the German troops has been made at the Institute of Infectious Diseases; all that used in England has been prepared at the Royal Army Medical College in London, and we have made all ours at the laboratories of the Army Medical School in Washington.

The vaccine used in Germany and in the German colonies is made according to the methods elaborated by Pfeiffer and Kolle. The method is a direct outgrowth of the usual laboratory technic for the immunization of animals. The standard of dosage is that quantity of eighteen-hour agar culture, which is held in a platinum loop, one millimeter in diameter; this is the so-called normal loop and is considered equivalent to two milligrams of fresh agar culture. The originators of this method of standardization do not pretend that it is exact, but that it is sufficiently so for all practical purposes. One, two and three loopfulls are used as the first, second and third doses; the quantities of salt solution and culture are so proportioned that  $\frac{1}{2}$  c.c. represents one loopfull of culture.

When it becomes necessary to prepare large quantities of vaccine the measurement by loops becomes impossible, and it was determined as the result of a long series of carefully conducted trials, that the standard agar slant used in the Institute would furnish on an average ten normal loopfulls of culture. Tubes of the same size were selected and they were filled with a uniform quantity of agar. Good growths were obtained by inoculating the tubes with a broth suspension of constant strength from fresh agar cultures.

The advantages of agar cultures over broth are generally acknowledged. The growth is entirely on the surface and in intimate contact with atmospheric oxygen, and it is almost impossible to have any contaminating anærobic bacteria present. The accidental contamination of cholera vaccine with tetanus in India makes it advisable to use every conceivable precaution in the preparation of vaccines. Another advantage of agar cultures over broth is the facility with which accidental contaminations may be detected by naked eye examination of the cultures.

These two points have been sufficient to induce most bacteriologists to use agar. There is another advantage of no mean importance possessed by agar cultures, and that is the much greater quantity of growth which is obtainable on this medium. The typhoid bacillus is, to be sure, a facultative anærob, but it grows much better in the presence of abundant oxygen, and on the surface of a liter of agar it is possible to obtain many times the number obtainable from the same quantity of broth. In the opinion of German investigators it is possible to standardize the dosage with greater exactness by the loop method when carried out under standard conditions than with the ingenious direct counting method of Wright. It does not appear, however, that Wright's method has ever been given a serious trial. During the work of the last two years we have found that much more exact results were obtained by direct counting of the bacteria than by standardization with platinum loops. Twice the quantity or even more bacteria per tube has been obtained from one batch of agar than from another and great variations in dosage would have occurred had we relied exclusively on measurement by loops from standard agar slants. Pfeiffer and Kolle add 5 c.c. of physiological salt solution to each standard agar slant, and in this the growth is emulsified. To remove chance particles of agar the emulsion from a large number of tubes is filtered through sterile gauze into freshly sterilized Erlenmyer flasks. After the emulsion has been killed by exposure to 60 C. for an hour and a half to two hours the mixture is well shaken and samples are then taken to make sure that all bacteria have been killed. If these tests are satisfactory 0.3 per cent. of pure phenol is added and after bottling the vaccine is ready for use. Animals

are no longer used for determining the dosage but experience shows that 3 c.c. of such a vaccine will kill a 250 gram guinea-pig when injected intraperitoneally. In the beginning of their work the Germans used one, two and three loopfuls of culture or two, four and six m. gr. respectively for the first, second and third doses. This quantity was contained in 0.5, 1.0 and 1.5 c.c. of finished vaccines. Experience soon showed that human beings were relatively more susceptible to its toxic action than animals, as both the general and local reactions were needlessly severe and in their later work the dose was reduced to 0.4, 0.8 and 1.2 c.c. The interval between doses has been ten days throughout the entire work. The characteristic points of the Pfeiffer and Kolle vaccine are the use of agar cultures, the standardization by means of normal loops, and the rather large size of the dose, amounting to three or four times that used in England and the United States, and the long exposure to a high degree of heat.

The vaccine which has been used in our service has been prepared from a single strain of the bacillus, which has been for many years under cultivation, and has practically lost its virulence for animals. It grows luxuriantly on agar and presents the usual characteristics on all laboratory media. Before making a batch the culture is plated out and half a dozen typical colonies are selected for further use. The growth on each of six tubes is washed off in 2 c.c. of broth and used in the next step, which is the inoculation of a number of large Kolle flasks. These flasks are shaped like large Petri dishes with a single opening on the side. The neck of each flask is short and terminates in a raised shoulder which limits the flow of agar when the flask is laid flat. The surface of the agar in each flask is equivalent to twelve slants of the usual size. The cultures are incubated for eighteen hours and each flask is carefully scrutinized for contamination before washing off the growth in salt solution. The emulsion is collected in one or more two liter flasks; the cotton stoppers are protected with tin foil and the flasks are sunk in a water bath and kept at 55 to 56 C. for one hour after they reach the temperature of the bath. This point is determined by using a dummy flask filled with the same quantity of salt solution in which a thermometer is immersed and as soon as this shows a temperature of 55 C. we begin to count the hour for killing. While the flasks are in the bath the emulsion is standardized by counting the bacteria from a sample of the unkilld emulsion in the manner already described. After the emulsion is cooled it is diluted with salt solution and  $\frac{1}{4}$  per cent. of tricresol added. We prefer this to lysol since the large quantity of alkali used in making the latter may alter the bacilli after long storage. Large samples are taken for aerobic and anaerobic tests and several c.c. is made use of for each

test, as it is not believed that small quantities are adequate for the detection of living typhoid bacteria or contaminating organisms.

If the tests be satisfactory, the batch is put up in small ampules, and before issue is again tested bacteriologically and on animals. One-half c.c. is given to at least two mice and  $1\frac{1}{2}$  c.c. to the same number of guinea-pigs. Up to the present we have had no occasion to discard any vaccine because of failure to pass the animal tests. Both mice and guinea-pigs are exceedingly sensitive to tetanus and the satisfactory outcome of the animal tests gives a feeling of security and confidence in the harmlessness of each batch of vaccine which we could not have had we rely entirely on tests made on culture media.

Our policy has been to use fresh vaccines only, those not over three or four months old, yet the older batches have proved quite efficient in animal tests even after a year and a quarter. It is very desirable to have a vaccine which can be kept indefinitely for use in emergencies and in our colonial possessions. Experimental work, which from its very nature must be slow, is now in progress to determine the keeping qualities of various vaccines.

The first dose contains 500,000,000 bacteria and is contained in  $\frac{1}{2}$  c.c. of salt solution. It is injected into the subcutaneous tissue of the arm at the level of the insertion of the deltoid. The skin is prepared by washing with a solution of tricresol and soap and the needle puncture is cauterized with a drop of liquor cresolis comp. U. S. P. In a series of several hundred cases the skin has not been washed but has been treated with tincture of iodine before and after the injection, and this degree of disinfection has been adequate. The preparation of the skin with tincture of iodine presents distinct advantages, if it may be relied upon, as it saves considerable time and labor, and would be an ideal method for use in camps. The dose is given at four o'clock in the afternoon for the reasons already stated. The second and third doses are twice the size of the first and contain 1,000,000,000 bacilli in 1 c.c. of fluid, and are given ten and twenty days later. The interval of ten days is the logical outcome of experience in immunizing animals, and there is rarely any reason for departing from it. Occasionally, when one is treating students or busy men, it is more convenient to inoculate on every other Saturday, allowing Sunday for the man to lay up if necessary; and this has been done from time to time without ill effects, although at first we were somewhat concerned about a possible anaphylactic effect, yet none has been observed.

The immediate effect of the inoculation is a smarting pain which passes off in a few minutes. If the vaccine be inadvertently injected into the skin or the muscular tissue, the pain may be considerable, and the local reaction altogether more severe. Nothing further is noted until



four or five hours afterward, when the man may have a headache and feeling of malaise, and at the site of inoculation a red and tender area about the size of the palm of the hand. The headache and other symptoms are rarely sufficient to interfere with sleep, and by the next morning all symptoms have usually disappeared. In 95 per cent. of the cases the men are able to eat a good breakfast and carry through the day's work without inconvenience. The local reaction is a fairly constant phenomenon, and neither personal idiosyncrasy nor the size of the dose causes much variation. It begins to appear in four to six hours and reaches its full development in twelve and gradually subsides and disappears in forty-eight to seventy-two hours. Occasionally, especially in children, or after the third dose, there is little or no local reaction; on the other hand it may be unusually severe with redness and swelling from the shoulder to the elbow or even half-way to the wrist. The axillary lymph nodes may be swollen and tender on pressure but the swelling disappears in about twenty-four hours and is never followed by permanent enlargement or suppuration. These extensive local reactions are not particularly painful and the men are able to use the arms for light work without discomfort and no local application or support has been necessary.

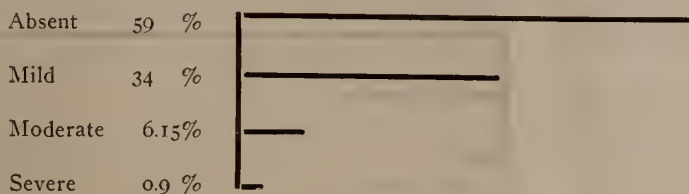
No hypodermic abscesses have been reported, although over 34,284 inoculations have been given. The complete immunity to suppuration in the skin is no doubt due to the presence of tricresol in the vaccine and it furnishes an additional reason for using an antiseptic. A small bullet-like indurated mass may be felt for not more than a week or two, but no scar or discoloration of the skin remains.

All cases are reported on a blank form and the general reactions are classified in four groups, separated one from another by the degree of temperature elevation. We class as severe all reactions with a temperature of over 103; as moderate those between 100-103; all temperatures below 100 and above the normal are classed as mild; when no temperature elevation is noted the reaction is considered absent unless the man complains of headache and malaise. A classification based on temperature is not altogether satisfactory since the symptoms are not always marked in proportion to the amount of fever, but no other system appears feasible as the observations must be made independently by many men. The classification has given satisfaction in spite of the fact that some tender-hearted physicians have reported nothing but severe and moderate reactions in every case treated. These results have been tabulated and are given in the following table:

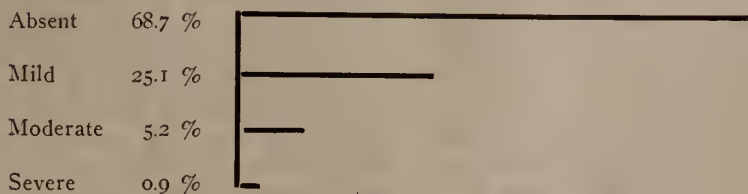
GENERAL REACTIONS FOLLOWING VACCINATION.

1909.

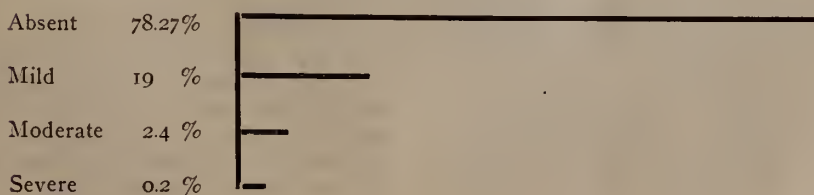
First Dose (1,887).

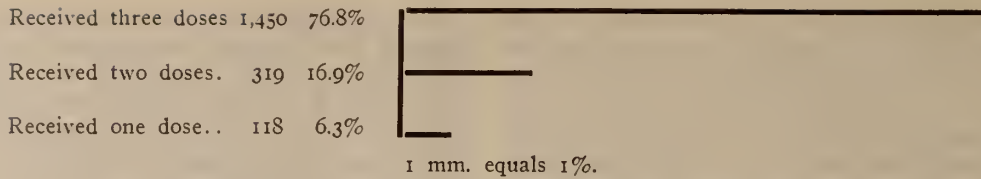


Second Dose (1,769).

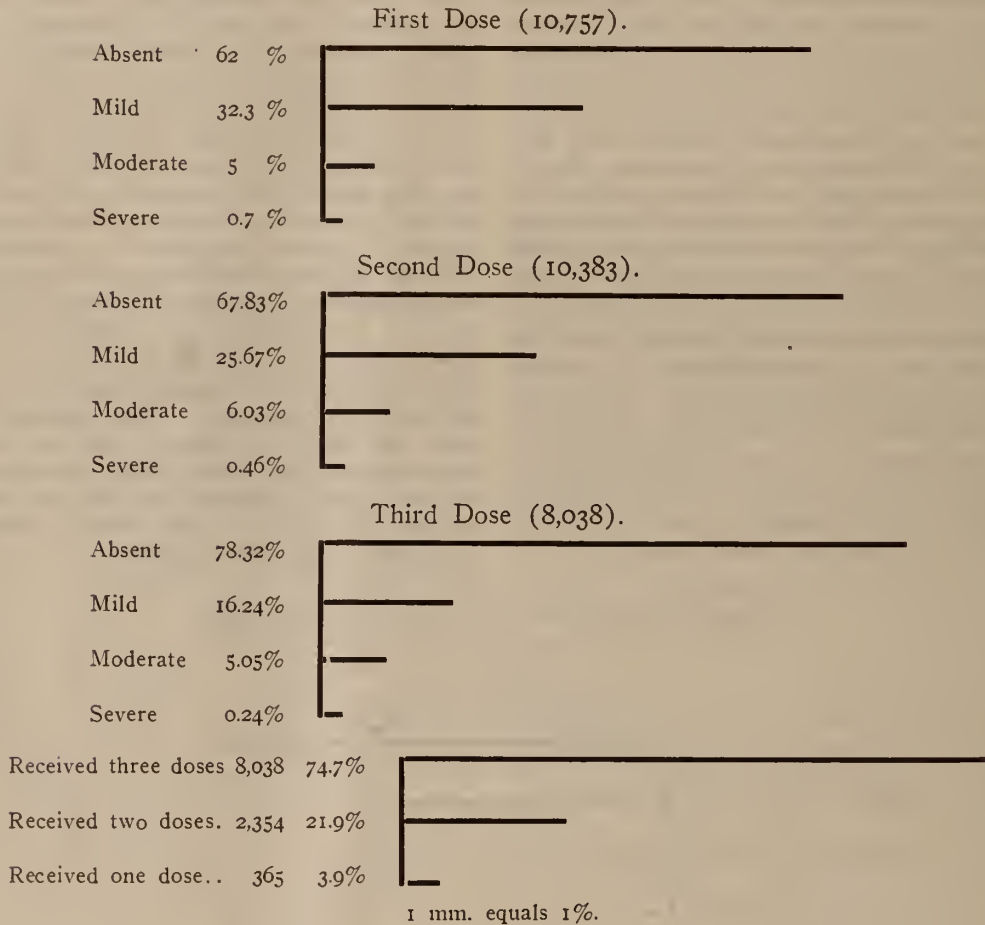


Third Dose (1,450).





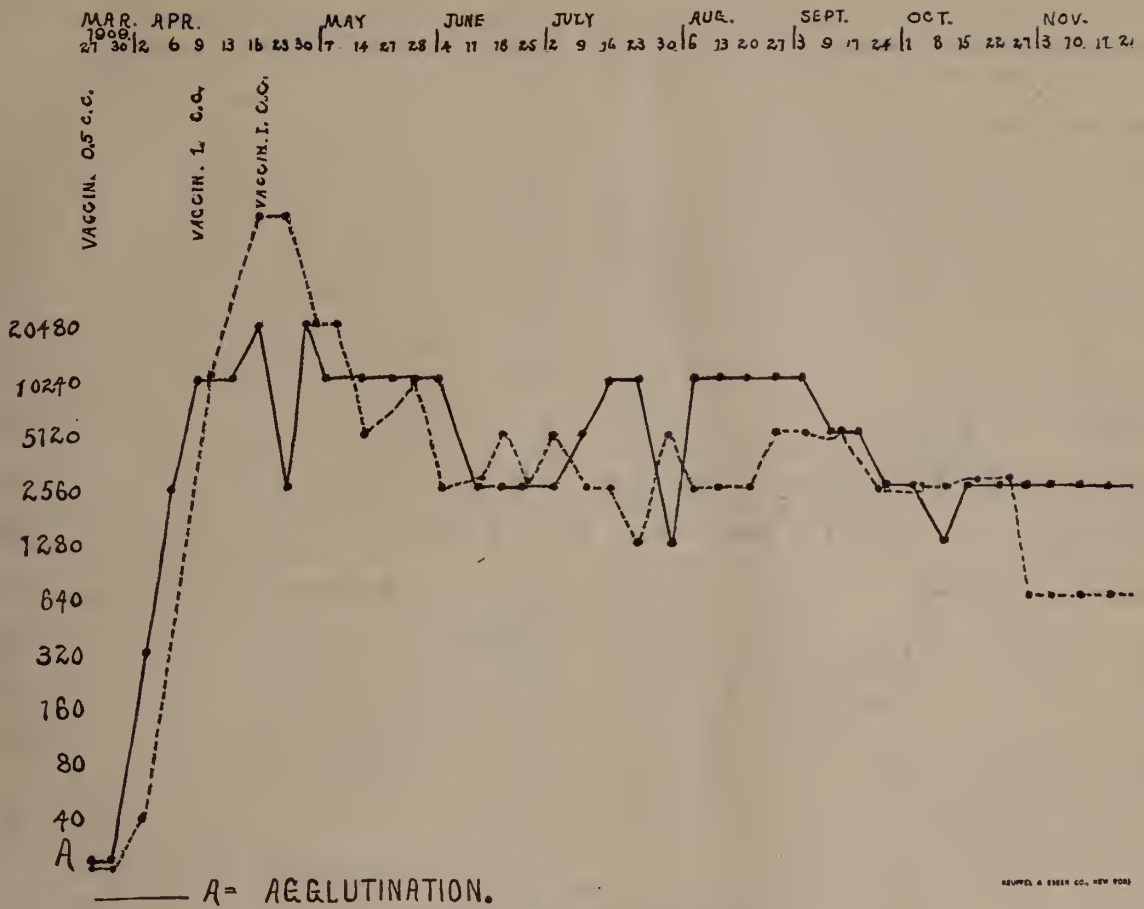
GENERAL REACTIONS FOLLOWING VACCINATION.  
1910.



The general reaction varies more than the local. In children, and in many adults, it may truly be said to be absent. Quite aside from the temperature elevation, there is in the milder forms a transitory headache and feeling of malaise lasting from two or three hours to a day. Occasionally there are chilly sensations without much rise of temperature. A few men have complained of nausea, or diarrhoea lasting for a few hours. The usual description of a mild reaction would fit very well the symptoms of an acute cold. The severe reactions, which are fortunately infrequent, may occasion some alarm when seen for the first time. They pass over quickly, however, and aside from the loss of a few pounds in weight, leave no sequelæ. A severe reaction may come on in from twenty to thirty minutes to three or four hours. The vaccine has never intentionally been put into a

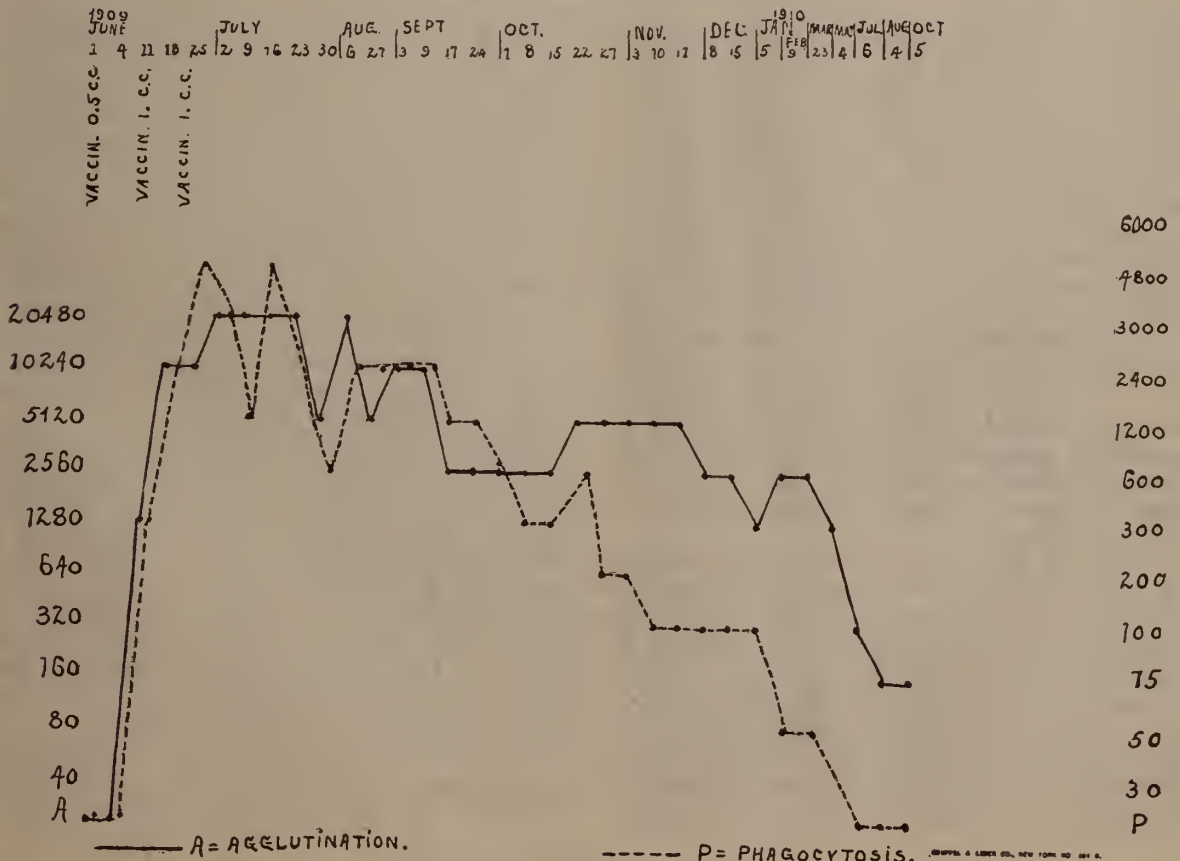
vein yet a few severe reactions coming on almost immediately must have been due to the puncture of some blood vessel. In one case a well marked chill came on in twenty minutes, followed by profuse diarrhoea and on the following day by herpes involving the greater portion of the face. The man was confined to his room for thirty-six hours, losing six or seven pounds in weight, and although the herpes lasted nearly a week this experience did not discourage him and he had very little reaction after subsequent doses.

In addition to the elevation of temperature the severe reactions are characterized by chills or severe headache and pain and stiffness in the muscles, by nausea, vomiting or diarrhoea and not infrequently by herpes, and loss of weight. No cases of albuminuria have been reported. We have taken especial pains to obtain full re-



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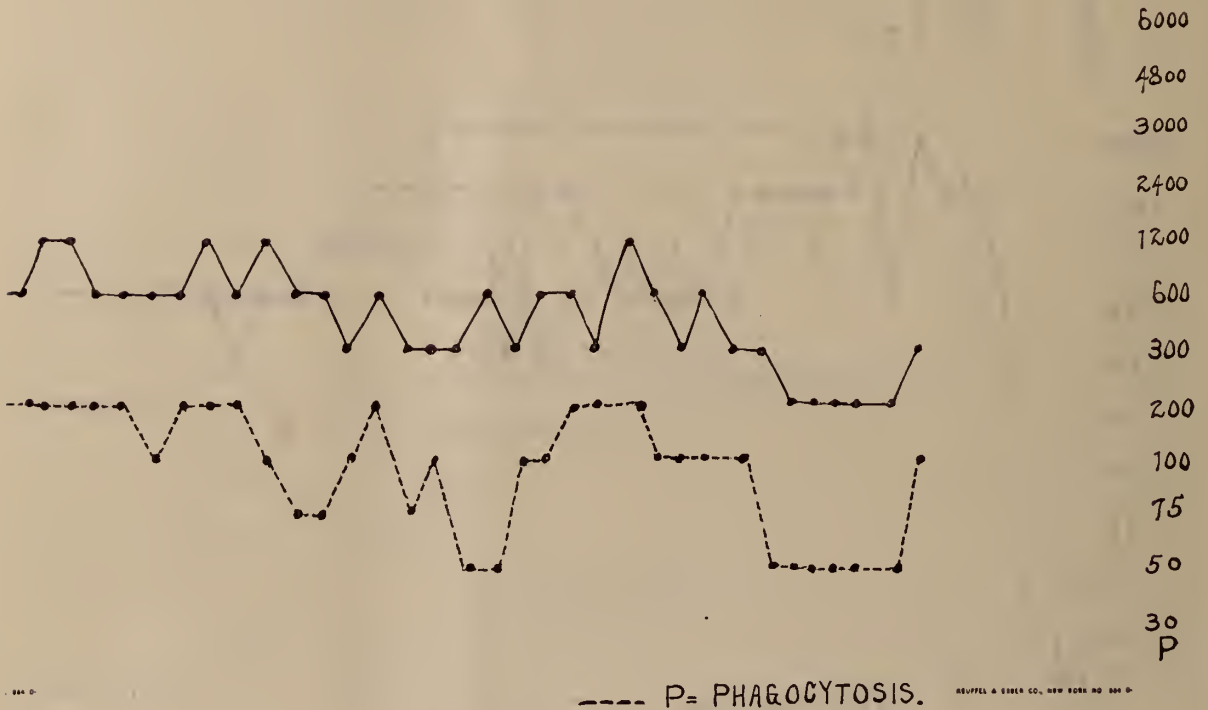
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ports of all severe reactions, as it was realized from the beginning that if many occurred it would be increasingly difficult to induce men to volunteer. As the charts show the severe reactions are infrequent and follow less than 1/2 of 1 per cent. of the vaccinations. We do not know when to expect them and for this reason the immunization of elderly people and of invalids has not been undertaken. The fact that a man has already had typhoid increases the chance of a moderate or severe reaction. The reports from 124 such persons have been tabulated and among them there is a higher percentage of marked reactions. Not every one who has had typhoid has a marked reaction and the condition is not easily explainable. To what extent this greater susceptibility may indicate residual infection in chronic bacillus carriers is at present unknown.

It is well known that there is great variation in the severity of the fever in different epidemics, and even among individuals in the same epidemic, and one of the causes commonly assigned for this individual variation is personal susceptibility; in default of any better explanation it seems reasonable to believe that persons who show great susceptibility to the vaccine are those who would present the least resistance to the disease if naturally infected with typhoid.

Sir W. B. Leishman says, "the explanation of this idiosyncrasy is not very clear, yet I have some reasons for thinking that an exceptional severity of reaction indicates an unusual degree of susceptibility of that individual to the action of the typhoid bacillus and that he is less likely to escape infection than one who shows but a moderate or average reaction. I have known a fair number of instances in the army in which a man who has recovered from an exceptionally severe attack of enteric fever has, some years afterwards, had another attack, and I am inclined to think that this is another manifestation of the same phenomenon—namely, an individual hyper-sensitiveness to infection."

During the past year we have had a case of typhoid developing in a vaccinated man which gives support to this theory. This man had typhoid fever in 1899. He was vaccinated in June, 1909, receiving two doses. The first dose produced a moderate reaction while an exceptionally severe one followed the second. In March, 1910, he suffered from a mild attack of typhoid. The conclusion seems warranted that in this case we have an instance of individual hyper-sensitiveness to typhoid infection.

In this connection I wish to quote from a recent paper of Theobald Smith, "Certain individuals are more easily protected against

infectious diseases by vaccination than others. Let me illustrate: Certain individuals contract hemorrhagic types of infectious diseases—small-pox for example—and die early in the disease. This means usually great susceptibility rather than a high degree of virulence, because such cases are rare among types of ordinary severity in the same outbreak. Now, if we should vaccinate such a person, what would be the result? In the absence of any possibility to find out by actual trial, I venture to assume that such a person's immunity would be raised by ordinary vaccination only enough to escape the fatal disease. He would probably contract varioloid after exposure. In estimating the success of vaccination we often blame the vaccine for failure without taking into consideration the very low resistance of certain individuals. In the laboratory a small percentage of the animals used show a distinctly or lower capacity for immunization than the rest."

In the course of the last eighteen months we have examined the blood serum of a large number of vaccinated persons and have invariably found evidences of immunity. The test for agglutins is made by the macroscopic method and the serum dilutions are prepared with great care. The increase in the agglutins is evident by the sixth or seventh day and the rise in opsonins follows quickly. The Widal is positive in high dilutions of the serum, in many cases being present in a dilution of one in 5,000—10,000 or even one in 20,000. Only rarely does it fail to rise above one in five or six hundred. It reaches its maximum soon after the third dose and falls rapidly at first and then more slowly toward normal.\* In a few of the cases examined it is found to have reached normal within a period of six months, but oftener has remained present for nearly a year. In the two charts exhibited the widal is still present after seventeen and twenty months. These charts also show the curves of opsonins. We do not use the opsonic index of Wright but make serum dilutions just as for the agglutination reaction. To a portion of the serum of each dilution is added a definite quantity of bacterial emulsion and a few drops of a suspension of guinea-pig leucocytes according to the method of Neufelt. After incubation spreads are made from each tube and the titer or phagocytic power of the serum is established by observing which serum dilutions cause greater phagocytosis than is found in the normal serum controls. This method has given regular and consistent results and we find the opsonic power of a serum to be just as definite a thing as its agglutinating power. In recovery from typhoid fever it is not at all improbable that the opsonins are more important than any other of the known anti-bodies. The opsonic curve is never as high as the curve of agglutins, nor does it continue above normal as long.

Our bacteriolytic tests have been made in

vitro according to the method of Stern and Korte, but as occasional erratic determinations occur the curves have not been charted. No determination of bacteriolytic amoceptors by means of Pfeiffer's experiment have been made.

The leucocyte count is temporarily but regularly raised after each dose of vaccine. The rise is often to 15,000, but it soon begins to decline and reaches normal in about ten days.

Several other vaccines have been suggested but these are the only ones which have been used at all extensively.

Neisser and Shiga proposed an autolysate which was presumed to contain free receptors in large quantities. It caused very severe local reactions and was soon dropped.

Wassermann also used an autolysate which he filtered through porcelain and then dried the filtrate in vacuo at 35 C. The resulting powder was used in doses of 1.7 m. gr. This was so difficult to prepare and keep sterile that it has not been used.

Loeffler, Brieger, Besreda, Vincent and Vaughan have all proposed modifications mainly on theoretical grounds.

Semple and Matson have strongly advocated the omission of heat altogether since the antiseptic is added in sufficient quantity to sterilize the vaccine. In their experience a vaccine so prepared was still efficient after two years.

We have prepared a series of vaccines without the use of heat and have used various agents to sterilize them. Phenol, 0.3 per cent., tricresol,  $\frac{1}{4}$  per cent., formalin, 1 per cent., antiformin,  $\frac{1}{4}$  per cent., and diluted hydrochloric acid  $\frac{1}{4}$  per cent. were all tried and the product compared with one made in the standard way. Neither the antiformin nor the hydrochloric acid vaccines produced large quantities of anti-bodies; those prepared with phenol, tricresol and heat plus tricresol were all equal; heating the vaccine did neither harm nor good. The formalized vaccine prepared without the use of heat gives rise to much greater quantities of anti-bodies than any of the others, and if our experience be borne out by farther work we will have in formalized vaccine something much more efficient than any at present in use.

During the last eighteen months we have vaccinated 12,644 persons and among them there have been five cases of typhoid with no deaths. The first case was infected just before or after the first dose and came down with the fever soon after the second. The course of the fever was mild, the temperature reached 103 once only and there were no complications. The diagnosis was confirmed by isolating the bacilli from the stools. The four remaining cases were all extremely mild and in the absence of blood cultures to confirm the diagnosis there is a reasonable doubt as to its correctness. The Widal reaction is worthless, as a means of diagnosis, among vaccinated men, since it persists for

\* For charts see pages 545-546.

many months following inoculation and blood cultures should invariably be taken in such cases. We do not know that these four cases were not instances of paratyphoid or some other febrile condition; they are, however, included in the statistics for the reason that the diagnosis has been made and so reported.

During the same period there have occurred in the remainder of the army 418 cases with 32 deaths. The rate per thousand among the vaccinated is 0.39, while in the army at large it is nearly ten times as high. It is difficult to express the difference in percentages since the army is a living body, undergoing continuous change. Men are enlisted for a period of three years and nearly a third of the force is lost each year. In a general way I might say that about one-seventh of the army has been vaccinated and that five cases with no deaths have occurred among them. In the other six-sevenths of the force there have been, not thirty cases, but 418 with 32 deaths.

The following is one of several recent experiences:

On June 14, 1910, 92 men of Co. A, 1st Battalion of Engineers were vaccinated. On June 24th the company left Washington, D. C., en route to Gettysburg, Pa. The total strength of the company was 118 men. Ninety-two of these had received at least one inoculation, two others gave a history of having had typhoid and may be considered immune, thus leaving twenty-four men unprotected by either a previous attack of the disease or by vaccination. On August 11th, five days after returning from maneuvers, two cases of typhoid fever occurred among the unvaccinated and four secondary cases occurred between the 20 and 23, also among the unvaccinated. No cases occurred among the vaccinated, while 25 per cent. of the non-immune living under exactly the same conditions succumbed to infection. As great a difference as this is certainly significant and justifies us in believing that we have at last a measure which will save untold lives in time of war.

### THE RELATION OF THE INTERSTITIAL CELLS OF THE TESTICLE TO ITS INTERNAL SECRETION.\*

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**T**HE fully differentiated adult individual presents in addition to the structural characters peculiar to the genus, species and variety, certain anatomical characters which are especially associated with the reproductive

function. The distinction between the sexes is shown not only in the possession of different germinal organs, but in the development of highly specialized mechanisms which render possible the union of ovum with spermatozoon, the nourishment and protection of the developing embryo, its expulsion when it is ripe for an independent existence. In addition, the rivalry of the males for the favor of the female has led to the acquirement of particular modifications of plumage, hair, voice and so forth.

It is a biological platitude to say that the sexual activities of all adult individuals are correlated with far-reaching modifications of structure. Since every species has its own manner of sexual life, there are manifold variations in the character of the sexual cells themselves, in the accessory conducting and copulating mechanisms, and in the more remote insignia of sex.

What is it that brings about the differentiation of the individual into one of two distinct sexual types? The first impetus towards further differentiation into male or female is undeniably given at a very early stage of development, or even perhaps determined by the original germinal cells themselves. That the sex of certain aphids and phylloxera is determined by the number of chromosomes in the spermatid cells has been demonstrated by Morgan<sup>1</sup> and Wilson.<sup>2</sup> We have, of course, no cytological proof that such is the case in the vertebrates; but the not infrequent occurrence of manifold combinations of male and female characters in the same individual clearly show that the presence of ovary or testicle in the fœtus is not of itself sufficient to bring about the normal development of the other sexual characters. At most, we may say that the developing organs of the one sex exert an inhibiting influence upon the further development of the opposing sexual structures.

Although the original "determination of sex" occurs in the earliest embryonic period, it is not to be denied that the germinal organs exert a profound effect upon the body in extra-uterine life. The effects of castration have been carefully studied in many animals as well as man, and though many of the observations recorded by travelers and veterinarians are open to scientific criticism, we know that the removal of the sexual glands before the onset of sexual maturity is followed by a failure of the primary and secondary sex characters to undergo their normal differentiation. There is therefore, rather an arrest of development along these special lines than a diversion of the original line of development into that of the opposite sex.

Since the removal of the sexual gland is followed by such striking modifications in the general structure of the organism, it has been assumed that the ovary or testis produces a specific substance in the nature of a hormone or

\* Read in condensed form before the Society of Alumni of Bellevue Hospital, November 2, 1910.

internal secretion, which is responsible for the orderly development of the sex characters.

The possibility that the secondary sexual modifications might be brought about indirectly through the medium of the nervous system, was eliminated by the decisive and classical experiment of Nussbaum,<sup>3</sup> who transplanted the testicle of the frog into the dorsal lymph-sac and observed a normal development of the secondary and accessory genital organs. Similar experiments on other animals have been performed by Halban,<sup>4</sup> Foges<sup>5</sup> and Guthrie.<sup>6</sup>

The chemical nature of the substances producing these remarkable effects, is wholly unknown. It is probable that extracts of the germinal gland—more especially, the glycerine extracts, as shown by d'Arsonval<sup>7</sup>—have a stimulating effect upon the oxydative processes in general. Loewy and Richter<sup>8</sup> found that castration reduced the oxydative processes by 20 per cent. in male dogs or bitches, and that feeding of ovarian extract again restores oxydation to beyond the normal rate in either sex. This influence therefore, is not specific, no increased oxydation could be produced in uncastrated animals. Of other direct effects comparable to the supposed normal influences of the genital organs—we have little direct experimental evidence. Bayliss and Starling<sup>9</sup> state that "menstruation" and heat can be produced in spaded animals by the injection of ovarian extracts, and Walker<sup>10</sup> has succeeded in preventing the castration atrophy of the prostate in dogs by injections of testicular extract. We have been able to find no other records of experiments in which by the feeding or injection of testicular or ovarian extracts, it has been possible to bring about a normal development of the primary and secondary sexual characters in castrated animals. On the contrary, Jentzner and Beuthner<sup>11</sup> found that subcutaneous injections of ovarian extract in rabbits, dogs or cows, did not prevent castration atrophy of the uterus.\* Harms<sup>12</sup> has also recently reported some unsuccessful experiments in frogs. He found that repeated injections of ovarian or testicular tissue into the lymph-sacs of castrated frogs, did not noticeably stimulate the growth of the "Daumenschwiele" or excrescence normally developed on the fore-foot at the time of copulation. This excrescence constitutes a striking secondary sexual character which does not appear in castrated animals. The positive experiments of Loewy,<sup>13</sup> who fed capons with testicular extract and obtained a partial growth of the comb, are not convincing, as there was no microscopic proof that the castration was complete.

\* In a series of unpublished experiments by Dr. Silas P. Beebe and the writer, the attempt was made to produce a premature involution of the thymus gland in kittens, by the daily injection over a period of several months of glycerine extracts of adult cat testicle. Kittens of the same litter were used as controls. Although the weight of the thymus was slightly less in the injected animals than in the controls, no definite histological lesions pointing to a specific action of the testicular extract could be produced.

One must take into account, in judging the value of these negative results, that the periodic injection of variously prepared extracts of the dead organ is not necessarily a true guide to the action of that organ in the living body. Transplantation of the living tissue is far more conclusive and has already contributed much to the solution of the problem. By this means it has been proven at least, that the presence of testicular or ovarian tissue of the same species, even if transplanted into the subcutaneous tissue, is sufficient to ward off the usual castration effects. Thus, Halban<sup>4</sup> transplanted the ovaries of monkeys beneath the skin of the abdominal wall (auto-transplantation) and obtained a menstrual flow, which ceased upon the removal of the ovaries from their new site. Foges<sup>5</sup> transplanted the testicles in young cocks, and obtained a partial development of the secondary sexual characters. Guthrie<sup>6</sup> has reported similar conclusive experiments in hens.

The question as to what elements of the testicle are responsible for the production of the supposed internal secretion is the problem which has particularly interested morphologists. The question can by no means be considered as finally disposed of, although the trend of opinion is distinctly in favor of the interstitial cells. It is these structures and their possible relation to the development of the secondary sex characters that have particularly interested us. Before taking up the question of their functional significance, it is necessary to review briefly the more important histological work relating to the interstitial cells.

Leydig<sup>14</sup> in 1850 first noted that the interstitial tissue of the testis contained peculiar cellular elements, and although he gave no accurate description of these cells, they have been called after him, the "Leydig Cells." Kolliker<sup>15</sup> in the first edition of his text-book, published in 1854, also recorded the presence of the interstitial cells, and considered them as modified connective tissue cells. The first accurate description is given by Henle,<sup>16</sup> who observed the presence of fat and crystals. Ludwig and Tomsa<sup>17</sup> in 1862 attempted to show that the interstitial cells were related to the lymphatics of the testis. Boll<sup>18</sup> (1869) believed that the cells were related to the blood-vessels and that they entered directly into the formation of the capillaries. Waldeyer's<sup>19</sup> original view that the interstitial cells were akin to the plasma cells (not, however, identical with the mast cells of Ehrlich or the Unna plasma cells) was later modified into the belief that they represented perithelial cells (1870 and 1872), Hofmeister<sup>20</sup> contributed the first embryologic studies of the interstitial cells. He found that they were relatively abundant in the foetal testicle, occupying in the four months human embryo, about three-fourths of the total parenchyma; in an eight-year-old child, only about one-tenth. He noted also the increase in the number of these cells which takes place at puberty. He believed that the interstitial cells were of connective tissue origin and saw transitional forms between the fixed connective tissue cells and the interstitial cells. Mihalkowitz<sup>21</sup> (1874) maintained the same view as Boll—that the interstitial cells were related to the lymphatic system. Harvey<sup>22</sup> (1875) attempted to show that the interstitial cells were nerve cells related to the vaso-motor system. His theory was effectually controverted by Jacobson,<sup>23</sup> who also has the credit of first

describing a pathological increase in the interstitial cells of dogs, following trauma. Nussbaum<sup>24</sup> (1880) established the presence of the interstitial cells as a constant constituent of the testis, in mammals, birds and reptiles. Embryologically, he derived them from Pflüger's cell columns as cells persisting in an undifferentiated condition. He also erroneously believed that each group of interstitial cells was enclosed in a connective tissue membrane. Van Hansemann<sup>25</sup> (1895) made the interesting observation that the interstitial cells disappeared during hibernation, to reappear when the testicle became functionally active.\* He therefore concluded that the interstitial cells bore a direct relation to spermatogenesis. Von Bardeleben<sup>26</sup> (1897) attempted to show that the interstitial cells were epithelial in nature and related to the Sertoli cells, and that they migrated through the basement membrane into the tubules and subsequently degenerated. These views were refuted by Beissner<sup>27</sup> (1898) who proved that the Sertoli cells undoubtedly originate within the tubules. Plato<sup>28</sup> (1897) in his efforts to establish a trophic function for the interstitial cells, described clefts and fissures in the basement membrane of the tubules through which fat globules pass from the interstitial cells into the Sertoli cells. Beissner and later Thaler,<sup>29</sup> to whom we owe a most careful study of the fats and lipid substances of the testicle, totally failed to confirm Plato's observations. Thaler and Kasai<sup>30</sup> have made systematic studies of the life history of the interstitial cells, from foetal life into senescence. They have shown that these elements are extremely abundant during the fourth and fifth months of foetal life, and that after birth they rapidly diminish in number and are not much in evidence until the time of puberty, when they undergo a renewal of growth. Mitoses, however, are rarely if ever, observed. During middle life they remain approximately constant, according to Thaler, or diminish somewhat in numbers according to Kasai. Both pigment and fat gradually increase. The presence of fat in the interstitial cells, of interest in connection with their supposed trophic function (von Lenhossek,<sup>31</sup> von Hansemann, Plato, Regaud<sup>32</sup>) is to be regarded as purely physiological. Though present in small quantity at birth and during childhood, the fat does not become abundant until the time of puberty. Throughout adult life it remains as a constant feature of the interstitial cells. The fat in the interstitial cells is uninfluenced by the general nutrition and by pathological processes. There appears to be no direct relation between the fat in the interstitial cells and that within the tubules. Thaler has pointed out morphological differences between the fat which is intratubular and that contained within the interstitial cells. Our own observations are fully in accord with his. Whereas the Sertoli cells contain fat globules which in osmic acid preparations frequently have a foamy or vacuolated appearance, or are blackened only at the periphery, the fat of the interstitial cells is invariably in the form of massive, diffusely blackened globules. This would strongly suggest chemical differences in the nature of the fatty substances and would argue against a direct infiltration of fat globules from the interstitial cells into the tubules.

The large crystalloid bodies of unknown chemical composition which are found as inclusions within the interstitial cells of the normal testicle, were first described by Reinke<sup>33</sup> (1895), subsequently studied by Lubarsch,<sup>34</sup> and since then have been noted by all writers upon the histology of the interstitial cells. They are found only in comparatively fresh material. Their significance is obscure.

From the above brief review which makes no pretension of completely covering the very

\* Champney has recently confirmed this observation for *Rana esculenta*. (Comptes rendues de l'Acad. des Sciences; t. 64, 1908, p. 895.)

abundant literature concerning these structures, it will be seen that there has been great variance of opinion, not only as to the function of the interstitial cells, but as to their origin. By some of the earlier writers, (Nussbaum,<sup>24</sup> Hofmeister,<sup>20</sup> Gaufini<sup>35</sup>) they are considered to be epithelial in nature; by others, to be related to the blood-vessels (Boll<sup>16</sup>), or to the lymphatic channels (Ludwig and Tomsa<sup>17</sup>). By other investigators, and they comprise the greater number (Leydig,<sup>14</sup> Kolliker,<sup>15</sup> Messing,<sup>36</sup> von Hansemann,<sup>25</sup> and others) they are derived from the connective tissue, and represent peculiarly modified connective tissue elements. This is the prevailing view and the one to which the writers on the basis of their own studies would subscribe.

Little is known of pathological processes affecting the interstitial cells. There have been reported a number of cases showing a striking hyperplasia of the interstitial cells; this may be so extreme as to lead to the formation of macroscopic tumors. Von Hansemann<sup>25</sup> first observed an overgrowth of the interstitial cells in a case of pernicious anemia, and another of hemochromatosis. Cordes<sup>37</sup> described a distinct increase in the Zwischen-zellen in seven of fourteen cases of chronic pulmonary tuberculosis. It is, however, in the ectopic testicle that the increase in the number of the interstitial cells has aroused interest, and we have a number of elaborate studies dealing with their presence in increased numbers in cases of cryptorchidism. Among the writers who have particularly observed this are Pick,<sup>38</sup> Felizet and Branca,<sup>39</sup> Cuneo and Lecène,<sup>40</sup> Ancel and Bouin,<sup>41</sup> Dürck,<sup>42</sup> Hanes,<sup>43</sup> and Simmonds.<sup>44</sup> The increase in the interstitial cells, as well as the absence of normal spermatogenesis, would seem to be a characteristic feature of the ectopic testicle.

The possibility that some of the tumors of the testicle described as carcinoma or alveolar sarcoma, might in reality take their origin from the interstitial cells, was first suggested by von Hansemann.<sup>25</sup> Cases interpreted as Zwischen-zellen tumors have been reported by Chevassu<sup>45</sup> and Kauffman.<sup>46</sup>

Our own study of the interstitial cells is based upon a series of sixty testicles, taken from subjects ranging from infancy to the seventh decade. A short analysis of our findings may be of interest, although we have little new to add to the observations of previous workers, especially those of Thaler and Kasai. As regards the number of the interstitial cells, we have found with previous investigators, that they are relatively abundant during the fourth and fifth months of foetal life, diminishing towards the end of gestation. In infancy and childhood, they are scant in number, and with difficulty distinguishable from the fusiform connective tissue cells which form the bulk of the intertubular substance. With the onset of puberty, the interstitial cells



again become prominent, and are easily recognized by their typical form and arrangement. Throughout adult life, we have found great individual variation in the number of interstitial cells, so that it has been impossible to determine either a definite increase or a decided diminution with advancing age. Thus of cases over 15 years (not including two cases of extreme hyperplasia described below) the interstitial cells were extremely numerous in 7 cases; numerous in 10 cases; moderate in number in 23 cases; scarce in 9 cases, and in 1 case only entirely wanting.\* That there is no fixed relation between age and the number of interstitial cells—at least, in adult life—is shown by group I, in which the ages ranged from 22 to 60 years.

We have likewise failed to find any relation between the interstitial cells and the presence of spermatogenesis. As this has been the observation of all previous workers, with the possible exception of von Hansemann<sup>25</sup> and Kyrle,<sup>47</sup> the statement needs no further comment.

The fat within the interstitial cells, scant during infancy and childhood, gradually increases from the time of puberty. There is wide variation in individual instances, however, and no apparent relation to the general nutrition of the subject.

The pigment does not become abundant until after puberty, and increases progressively in later life. We have never observed typical pigment in the child's testicle; however, in young infants, we have several times noted large clumps of yellowish brown pigment, lying either within the connective tissue cells or extra-cellularly. This pigment fails to give the iron reaction with potassium ferro-cyanide and HCl; treated for 24 hours with dilute Giemsa solution, after the method of Schmorl<sup>48</sup> for the demonstration of the chromaffin pigment, it fails to take the characteristic greenish color. Simmonds<sup>49</sup> has recently called attention to the frequent occurrence of pigment in the testicles of young infants, due to traumatic hemorrhages at birth.

The pigment of the interstitial cells in the fresh state, has a pale yellowish brown color, which is intensified by fixation in chrome salts. With Schmorl's method, the pigment takes the characteristic bluish-green color, in this respect being identical with the chromaffin pigment. An aqueous extract of testicle containing abundant pigment, failed to give a positive reaction for adrenalin with Comessati's<sup>50</sup> reagent (1-10,000 HgC<sup>1</sup>). Further efforts to identify the pigment of the interstitial cells with the chromaffin substance, have not been made, and we have had no opportunity to try the physiological reactions.

The typical crystalloids, first described by Reinke, have been found only three times in our

series—probably because the material was not obtained sufficiently soon after death.

In order to decide the question as to which elements of the testicle produce the internal secretion, it is essential that we should be able to eliminate at will, any one of the three sets of structural elements which may be considered as possible claimants: First, the spermatic epithelium proper, including the spermatocytes, the spermatogonia, the spermatids and the spermatozoa. Second, the supporting syncytium, or Sertoli cells; Third, the interstitial cells or "Zwischenzellen."

Of these three constituent elements, the spermatic epithelium is most readily eliminated. Atrophy of the spermatocytes and their descendants may be produced in various ways. Ligature of the vas deferens, as practiced by Ancel and Bouin<sup>51</sup> among others, is followed after a time by complete atrophy of the spermatic elements, leaving the Sertoli cells and the interstitial cells intact. Practically the same effect is brought about by exposure to the X-rays. (Herxheimer and Hoffman.<sup>52</sup>) Furthermore, the examination of cryptorchid testicles both in man and animals (Cuneo and Lecène,<sup>40</sup> Felizet and Branca,<sup>39</sup> Pick,<sup>38</sup> von Hansemann,<sup>25</sup> Ancel and Bouin<sup>41</sup>), reveals as the most common finding, a complete failure of the spermatic epithelium to undergo its usual differentiation, the atrophic tubules being lined with an indifferent epithelium representing probably the Sertoli syncytium. The interstitial cells on the other hand, are not only regularly present in these cases, but are often markedly hyperplastic, as compared with normal testicles. The same condition apparently may occur in cases of simple testicular atrophy or agenesis, without cryptorchidism (see below), or in atrophy following inflammatory conditions in the epididymis or on the testicle itself. Finally there are several interesting cases of pseudo-hemaphroditism on record in which the examination of the male sexual gland showed atrophy of the seminal epithelium associated with hyperplasia of the interstitial cells (Abel,<sup>53</sup> Ströbe,<sup>54</sup> etc.)

In the majority of these cases where the reproductive cells proper are wanting, and only the Sertoli cells and the "Zwischensubstanz" need be considered as factors, the development of the sexual characters, primary or secondary, takes place normally. The experiments of Tandler and Gross<sup>55</sup> are particularly instructive in eliminating the influence of the spermatic epithelium itself. Whereas in castrated stags, the antlers regularly failed to develop, development of this striking secondary sexual character took place normally in those animals in which the spermatic epithelium had been destroyed by repeated exposure to X-rays leaving only Sertoli cells and interstitial substance.

This fact, borne out by a mass of evidence

\* Unfortunately, only one of the testicles from this case was examined, so that no certain conclusion can be drawn.

which the limits of this paper do not permit us to analyze in detail, seems to eliminate sharply from consideration, the spermatid epithelium as producers of the internal secretion. The problem is, therefore, narrowed down to either the Sertoli cells or the interstitial cells, and at present we have no method of artificially separating these elements. Until such a method shall have been evolved, the final adjudication of the claim must be deferred.

There is, however, a certain class of cases which in a negative way, may be of value. If in any particular instance, the secondary sexual characters are imperfectly developed, and a careful examination of the testis shows the presence of interstitial cells in abundance, it would seem proven that the mere presence of these elements is not sufficient to bring about the development of the sexual characters. The objection that the mere presence of the cells is not sufficient to establish their functional utility, may be raised. It is true that we have to rely upon purely morphological criteria to determine whether these cells are actively secreting or not, and that we have no physiological tests to prove their functional efficacy. The objection is, therefore, valid; on the other hand, there is little reason to suppose that cells which show the same striking histological characters as the normal cells, including the characteristic elaboration of fat and pigment, should not be equally potent to fulfill their specific function in the organism.

The following observation, has a distinct bearing upon the question at issue, and is therefore cited in considerable detail:

CASE I.—Acc. No. 2,371. Male, age 40 years. No previous history could be obtained bearing upon the occurrence of inflammatory conditions in the testicle.

The general appearance of the subject as described in the autopsy protocol, was as follows:

The body is slightly above the average stature. The skin is extremely smooth and of fine texture. There is a scant, straggling growth of hair limited to the chin and upper lip. The pubic hair is sharply confined to the prominent Mons Veneris, and the individual hairs are long and far apart. There is complete absence of hair over thorax and axilla, and over all other parts of the body with the exception of a few straggling hairs over the crests of the tibiae. The thighs are very broad and rounded in the upper portion, tapering to the knees. The arms also, are unusually plump and round. The neck is short, the shoulders sloping. The hands and feet are small and delicately formed. The face has a puffy, somewhat vacant appearance. The subcutaneous fat is everywhere abundant. There is an unusually large thymic fat pad, showing, however, no traces of glandular structure on cross section. The aorta is atheromatous and diffusely dilated in its upper portion, but unusually smooth, thin-walled and elastic in its abdominal section.

The solitary follicles of the small and large intestine are about the size of small bird-shot and prominent above the surface. The Peyers plaques are not enlarged. The adrenals are small and flat, the cortex relatively narrow.

*Genital Organs.*—The penis is short and of small calibre, the glans very pointed. The testicles lie within the normal scrotum, but are much reduced in size, measuring 1.9x1.5 cm. and 1.9x1.4 cm. on section. The surface of the cut section is brownish, smooth and does not show the normal stringy structure. The accessory genital organs were not carefully examined.

*Anatomical Diagnosis.*—Fatty cirrhosis of liver, sclerosis of aortic cusps, atheroma of aorta, hypoplasia of testicles and penis, juvenile habitus.

*Microscopic Examination.*—The testicle is covered by a broad tunica consisting of rather dense laminated fibrous tissue. In the sections which were taken from several different portions of the testicle, all trace of normal testicular tissue is lost. The tubular structure, however, is indicated by the greatly thickened membrana propria, which is composed of two sharply differentiated zones. The outer zone, comprising about one-fifth of the diameter of the tubule, stains intensely with eosin, and under the high power, is seen to be formed of rather thick, concentrically laminated collagenous fibrils. The lighter central portion is formed of an irregular meshwork of more delicate, irregularly disposed fibrils.

A few groups of tubules contain in their central portion small masses of epithelial cells, the nuclei of which are round, well stained and show distinct nucleoli. There is absolutely no differentiation into the various spermatid elements.

Because of the preservation of the tissue in alcohol the presence of fat within the tubules could not be demonstrated.

The fibrous remains of the tubules are separated by abundant connective tissue, which is most cellular about the tubule where the cells show a concentric arrangement. No inflammatory changes are present.

The blood vessels, more especially the smaller arteries, are the seat of hyaline degeneration, affecting the inner portion of the media. The lumen of the vessels is not compromised thereby, nor are all the vessels affected. There are no thrombi.

The interstitial cells themselves are readily seen with the low power, being disposed in more or less compact strands or islands, some of the larger masses attain a considerable size so as to be visible to the naked eye in the section as dark red spots. Under the high power the interstitial cells have very indefinite outlines and in many places appear to fuse with one another. The individual cells are about the size of liver cells; the nuclei are large, irregularly oval, with a very distinct, deeply staining nuclear membrane and a poorly marked nuclear network. The nucleoli, of which there are one or two to each cell, stain distinctly. The cytoplasm takes the eosin rather intensely. There is no sharp distinction between exo- and endoplasm. The protoplasm is granular and vacuolated, the cell confines extremely indistinct. Some, but not all of the cell groups contain finely granular brownish pigment, which in individual cells may be so abundant as to compress the nucleus into a pycnotic crescent. In sections stained for 24 hours in dilute Giemsa solution after the method of Schmorl, the pigment takes a greenish-blue color. Irregular clumps of pigment are also found lying free between the cells and suggesting that some of the cells have undergone complete pigmentary degeneration.

In one of the sections examined there is found an island of interstitial cells which in its general structure somewhat resembles parathyroid tissue. The cells themselves are well preserved, have a distinct polygonal outline, and are closely packed. The pigment is very abundant, but is not uniformly distributed throughout all the cells, some of them containing no pigment at all. A medium-sized artery enters the island at its periphery and many thin-walled capillaries ramify through it.

The sections include a number of the tubuli recti, which in striking contrast to the convoluted tubes, are lined with well preserved layer of high cylindrical ciliated epithelium. The significance of this we shall discuss presently.

The interest in this case lies in the association of a distinct hypoplasia of the sexual characters with hyperplasia of the interstitial cells of the testicle. The adiposity, the juvenile configuration of the body, the sparsity and a typical distribution of the hairs, and especially the small penis, must be interpreted as signs of arrested sexual development.

The lesion of the testicle has after careful study, impressed us as a congenital one. The appearance is identical with that many times described in cryptorchid testes. There is no evidence of inflammatory change, nor is the architecture of the organ disturbed by the results of old inflammatory processes. Especially significant is the preservation of the tubuli recti, which as was shown by Geoffrey St. Hilaire, develop independently, and normally form secondary connections with the testicular epithelium proper. It is hardly probable that an inflammatory process, whatsoever its nature, could produce such widespread changes in the body of the testicles, leaving the accessory conducting tubules intact.

The conclusion that may safely be deduced from the foregoing case is that the presence of interstitial cells, even in abundance, is not necessarily followed by the normal acquirement of all the secondary sexual characters.

We wish to report a second case in which the subject presented the normal masculine habitus in spite of an extreme atrophy of the testes.

CASE II.—Acc. No. 2,512. Male, aged 61 years.

*Anatomical Diagnosis.*—Lobar pneumonia, suppurative pleurisy, suppurative pericarditis, infarct of lung, thrombosis of pulmonary artery, multiple angiomas of liver, fibromata and congenital cysts of kidney; hypertrophy of the prostate, atrophy of the left testis, double varicocele.

The left testicle is atrophic, measuring about 2 cm. in its longest diameter. On section, the testicular tissue is firm, showing evident increase in the fibrous tissue; the tubules cannot be pulled out with the forceps. On close inspection, there are seen a number of slightly prominent, circumscribed yellowish foci. The largest of these is about 3 mm. in size. The right testicle is also atrophic, but somewhat larger than the left.

Length  $3\frac{1}{2}$  cm. The appearance is the same as that of the other testicle. The epididymes are normal. The prostate shows slight hypertrophy of the middle lobe and contains abundant sand. The seminal vesicles are normal.

Pieces were taken from various parts of each organ, fixed in Fleming's solution and Muller-formol, and stained with saffranin, anilin gentian violet, dilute Giemsa, and Haidenhein's iron hematoxylin.

The tubules are entirely composed of hyaline material, showing only faint indication of fibrillary structure. A distinct lumen is absent; at most, there is an irregular cleft in the central portion in which there may be found one or several degenerated epithelial cells. Between the tubules is an abundant and very cellular connective tissue. About the tubules the nuclei of the connective tissue cells have a circumferential arrangement. The interstitial cells proper form a conspicuous part of the intertubular tissue and may be readily distinguished with the low power because of their characteristic staining reaction. They are arranged either in loose strands and cell masses, or in the form of well-circumscribed islands attaining a maximum size of several mm. They are thus easily seen in the stained section with the naked eye, and doubtless correspond to the yellowish nodules described in the fresh section. Taking one of these larger islands for description we find that it is composed of a reticulated syncytial protoplasm, having almost a fibrillary structure. It is impossible to distinguish the confines of the individual cells. The nuclei are roughly oval, many of them irregular in outline. They stain rather faintly, but show a fine chromatin network, rarely a distinct nucleolus. Many of the nuclei appear shrunken and pycnotic, taking the stain diffusely. No mitoses are found. The cell protoplasm has a fibrillary character and is extensively vacuolated.

In Fleming-saffranin preparations there are present in most of the cell groups numerous black-staining globules varying in size and irregularly distributed. As a whole the fat is less than one would expect from the vacuolated appearance of the cells. The fat globules vary in the intensity with which they stain with the osmic acid, some taking a brownish tinge and others a brownish black. Fat droplets are also occasionally present within the tubules, either in the form of small, diffusely stained granules, or as larger globular masses which frequently present a foamy or vacuolated appearance; some of the globules are stained only at the periphery, leaving a lighter granular center. These incompletely stained forms are very rarely seen within the interstitial cells.

Pigment is abundantly present both in the larger cell masses and in the smaller strands of cells situated in the interstices of the tubules. It occurs for the most part as fine brownish granules, varying somewhat in size; in sections stained with dilute Giemsa the pigment takes a greenish tinge.

Blood vessels are numerous, thin-walled and congested. The larger masses of interstitial cells are especially well vascularized.

The tubuli recti are lined with a single layer of low cuboidal epithelium devoid of cilia. This epithelium shows in places distinct degenerative changes, the nuclei being irregular in shape and staining diffusely. In places the tubules are filled with a conglomerate mass of exfoliated cells.

Sections of the other testis show in the main a similar condition. There are found, however, scattered among the hyaline tubules a few groups of tubules containing well preserved epithelium showing active spermatogenesis. Especially interesting is the distribution of the interstitial cells. These are everywhere increased in number, but more especially about the

atrophic tubules, between which they form thick strands, and in places, circumscribed islands. On the other hand, where the seminal epithelium is preserved, the interstitial cells, though more abundant than in the normal testis, are less noticeably increased. This observation is in direct opposition to that of Thaler, who states that the reverse is the case.

The two preceding cases have been reported at length, not only because of their possible bearing upon the question as to what elements are responsible for the internal secretion of the testicle, but also because we have found no reference in the English or American literature to similar cases. The hyperplasia of the interstitial cells was so pronounced in the second case as to give rise to tumor-like nodules easily visible with the naked eye. The diagnosis in such a case is possible from the gross appearance.

In our study of the interstitial cells, we have been particularly interested in the condition of status lymphaticus, and for the following reason: The subjects of this condition present certain anatomical features which may be considered as indicating an arrested sexual development. Perhaps it would be more accurate to speak of these individuals as failing to undergo normally and at the proper time, certain modifications of structure which in otherwise constituted persons, attend the ripening of the sexual function. Thus the typical hair distribution, as described by Norris,<sup>56</sup> is that of immaturity, and in pronounced cases, remains so throughout life. The thymus gland, which normally undergoes rapid involutional changes at the time of puberty, persists into the third and fourth decade; the regressive changes are delayed. The average stature of these cases, as shown by Bartels,<sup>57</sup> is above the normal—a phenomenon which is regularly observed in human and animal castrates (Tandler and Gross,<sup>55</sup> Richon and Jeandelize<sup>58</sup>), and appears to be due to a persistence of the epiphyseal lines beyond the normal period (Selheim,<sup>59</sup> Poncet,<sup>60</sup> Lannois Pierre Roy<sup>61</sup> and Tandler<sup>62</sup>). The average brain weight is also said to be above the normal for the age (Anton,<sup>63</sup> Bartels<sup>57</sup>), and since normally the brain begins to lose weight about the time of puberty, this too may be regarded as the persistence of a juvenile condition. The hypoplastic arterial system, especially the delicate and over-elastic aorta, is usually regarded as due to a defective development, but may perhaps with equal justice be ascribed to a persistence of the immature condition.

The overgrowth of the lymphatic tissue is perhaps the most characteristic feature of the lymphatic state. Whether there exist an inverse relationship between genital organs and lymphatic tissue, such as apparently does exist between testicles and thymus (Paton and Goodall,<sup>64</sup> Noel Paton<sup>65</sup> Calzolari,<sup>66</sup> Grimani<sup>67</sup>), remains for further investigators to prove.

From what has been said, there seems at least some basis for the belief that the peculiar

anatomical features characterizing the lymphatic state—or to use Bartel's poorly chosen phrase, the hypoplastic constitution—indicate a failure on the part of the individual to undergo the customary changes of puberty. Some of these changes fall unequivocally into the category of secondary sexual characteristics—especially the growth of hair and the masculine conformation of the limbs. But indeed, all those bodily changes which customarily attend the maturation of the sexual function, may in a broad sense, be classed with the secondary sexual characters.

If then, the proper acquisition of these secondary sexual characters is directly dependent upon the internal secretion of the interstitial cells, the testis in these cases of status lymphaticus should betray some deviation from the normal histological structure. The only previous reference to the condition of the testis in cases of status is that of Kyrle.<sup>68</sup> He found active spermatogenesis, presumably normal Sertoli cells and typical "Zwischen-zellen" in all the cases examined. As typical of the status testicle, he describes a premature thickening of the basement membrane and the supporting connective tissue. Tandler and Gross speak of "Undevelopment of the Testicle," in a single striking case of status.

Our own material included eight cases of status lymphaticus. The ages of the subjects were 7, 22 (2 cases), 24, 30 (3 cases) and 38. In two of the cases, no other cause of death could be determined.

Active spermatogenesis was found in every adult case of the series. The Sertoli cells showed no departure from the normal condition. In two cases in which the material had been fixed in Fleming's solution, the Sertoli cells contained the normal amount of fat.

As regards the number of interstitial cells, there was no difference between these cases and a large number of controls of the same ages. Thus in two of the cases, they were moderate in number, in three abundant, in three very numerous. The amount of fat and pigment likewise, did not differ from that of normal individuals. Briefly stated, we were unable to find any morphological peculiarities in the testicle of the cases of status lymphaticus; nor were we able to confirm the observation of Kyrle as to the thickening of the membrana propria and the relative increase of the interstitial supporting tissue.

One of the cases included in the above series was that of an acromegalic, 38 years old, with a very large adenoma of the anterior lobe of the hypophysis. The photograph in the original report of the case by Dr. Norris<sup>69</sup> shows the noticeable hypotrichosis as well as the juvenile conformation of the body. The thymus in this case was "persistent," and greatly enlarged (68 gms.). The testis proved normal in all respects;

the interstitial cells if anything, were unusually abundant.\*

The study of these cases, then, shows that the interstitial cells may be present or even increased in number, and yet the differentiation of the sexual characters be incomplete.

Now it is well known that influences originating outside the testes themselves may have a distinct bearing upon the sexual characters. The recently published experimental work of Crowe, Cushing and Homans<sup>70</sup> has shown that partial removal of the anterior lobe of the hypophysis is followed by genital atrophy in adults, or by a failure of the reproductive organs to develop, if the operation be performed on immature animals. The complete histological studies have not yet been published, but in one case (Obs. 33) separation of the stalk was followed by atrophy of the spermatic epithelium, and *increase* of the interstitial cells. Not only the spermatic function itself, but the secondary sex characters are affected by the operation of partial hypophysectomy, so that the operated animals become fat and lethargic and show no indication of sexual maturity. There are a number of clinical cases on record supporting these experimental results.

Interesting also in this connection, is the sexual precocity which has been observed in five cases of tumors of the epiphysis (Ogle,<sup>71</sup> Oestreich and Slawyk,<sup>72</sup> Gutzeit,<sup>73</sup> von Frankl-Hochwart,<sup>74</sup> Raymond and Claude<sup>75</sup>), and which has led Marburg<sup>76</sup> to ascribe to this enigmatical organ an internal secretion exerting a special influence upon the genital sphere.

It is further well known that general paresis occurring at or immediately before the onset of puberty, is followed by a complete arrest of further sexual development. (Fairbanks,<sup>77</sup> unpublished personal case.)

The above illustrations are cited to show that the orderly development of the primary and secondary sexual characters is controlled by complex factors—some of which at least, lie without the genital sphere itself. While it is not our intention to deny that the testicle exerts a definite chemical influence upon the whole organism, we are unwilling to admit that the evidence at hand is sufficient to connect the interstitial cells specifically with the supposed internal secretion. Not only has it been impossible to eliminate the Sertoli cells from consideration, but it has been shown that the interstitial cells may be abundantly present in cases of arrested or incomplete development of the sexual characters. It is highly probable that further research will reveal correlations and antagonisms between the genital organs and other glands of internal secretion, and that the *too* simple theory which ascribes the entire complicated series of changes attending the development of the sex characters,

to the interstitial cells alone, will have to be modified or abandoned.

It is our pleasant duty to thank Dr. Norris, director of the laboratory, for the interest he has shown in the preparation of this paper.

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## OUR LATEST EXPERIENCES WITH EHRlich'S REMEDY.

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IN view of the general distrust, which until recently existed about the arsenic preparations, the introduction of Ehrlich's dioxidiamido-arsenobenzol into the practice of medicine, was made difficult because of the possibility of meeting with hyper-sensitiveness to its use during the giving of repeated small doses. The same fear existed also in regard to repeated larger doses, when it had to be borne in mind that, in the experimental experiences with trypanosom-diseases a tolerance of the remedy by the spirochetæ was established. Experience has not removed both these fears, but has considerably reduced them.

Our first attempts at the cure of hereditary syphilis in the new-born were in cases afflicted with pemphigus and which were no doubt doomed to an early death. In some of them a dose of 0.03 produced symptoms which could be ascribed to a toxæmia produced by the destruction of a large number of spirochetes from the internal organs. We then gave doses of from 0.015 to 0.02 which was repeated in from eight to twelve days. The first case was cured after having received 0.015 each on April 4th and 15th. No recurrence has taken place thus far. But, because the Wassermann reaction, which had become negative, again became positive on June 27th, another injection was given which resulted again in a negative Wassermann.

We have in this way treated five other cases of syphilis in the newly-born, and in all have the symptoms been arrested without any harmful after results. This encouraged us to reinject with a stronger dose cases of most malignant syphilis previously reported, which had shown brilliant results, but in which small remaining ulcerations showed that a complete cure had not been affected, owing no doubt to too small doses.

These second injections were made when complete elimination of the first dose could be safely expected.

CASE I.—Flora S. (mentioned in my earlier publications) who had suffered for five years from incurable syphilis, causing strictures and ulcerations of the colon, incontinence of fæces and deep ulcerations of the nates, was almost entirely cured by an injection of 0.4 on April 4th, with the exception of a small ulceration on the right buttock. This was treated locally with calomel and she received iodide of potash internally, but without effect; on July 12, 1910, 0.45 of 606 was injected. Improvement followed at once but the ulcer had not healed completely until four weeks had elapsed and until the previously positive Wassermann had become negative.

CASE II.—W. D., who had been unsuccessfully treated for four years with all known remedies for a very malignant syphilis, received on April 13, 1910, 0.25 of 606. This, no doubt, too small a dose, resulted in complete healing of a large and deep ulceration of the scalp, a similar one on the inner aspect of the right thigh, one in the throat and almost complete destruction of the skin of the penis. All the scars remained firm and good, except on the penis which broke down again after three weeks. There also appeared a painful swelling at the lower end of the radius which had previously been involved, also a small, necrotic spot on the hard palate behind the right central incisor tooth. He received a second injection of 0.5 on June 27th, which promptly produced improvement, the radius pains disappeared and the swelling of the bone was reduced to almost normal, the penis was covered with good scar tissue up to a small point near the end, which was covered with healthy granulations but would not heal completely; this was no doubt due to lack of available skin. A plastic operation held out but doubtful promise of success on account of the extensive scar-tissue and I therefore injected another dose of 0.5 on August 8th, which was followed by complete healing. No bad effects upon the optic nerves followed these three injections, although the patient had previously been treated with atoxyl. The patient is now able to work and the cure seems complete.

On account of a painful swelling on one tibia in each of the cases, 7 and 8, both of malignant type, in which respectively on May 21st and May 24th, 0.4 had been injected, a re-injection was made in July, and both promptly recovered.

It is doubtful if in these cases the smaller dose had to do with the failure or absolute success of the cure, as would appear upon first thought. Considering the remarkable curative powers of the remedy it would seem that local conditions are to blame for the failure to completely heal all ulcerations. This is illustrated by the following cases of severe ulcerative syphilis which ran a similar course:

CASE I.—W. R., 23 years old. Onset August, 1909—Fifteen mercury injections. January, 1910, large ulceration on body; course of K. I. during February; middle of April, inunctions, transitory healing. Soon after again ulcerations which were treated by hypodermic injections. Following this the trunk and extremities are covered with small and large bluish scars and ulcerations; three large encrusted ulcers near the inner canthus of left eye. Left tonsil, arch of palate and uvula form one large ulcer. Left testicle the size of a hen's egg, hard and with uneven surface. Large perforation in scrotum which discharges daily  $\frac{1}{8}$  liter of foul pus. On July 23d received injection of 0.5; July 29th, throat and all other ulcers nearly healed. August 18th, another dose of 0.5 injected because the ulcers of the face and scrotum had not healed entirely. August 30th, patient presented himself with face ulcers entirely healed and only a small fistulous opening in the scrotum, the testicle having practically returned to normal size.

CASE II.—O. H., 22 years old. Beginning of March, 1910, eruption; April 20th, asurol injections. Six inunctions of gray ointment. On account of ulcerating papules of the face he received on July 19th, an injection of 0.5—606; **which was repeated on August 17th**, because two of the postules had not healed. After that the healing process continued uninterrupted.

In four cases of an unusually severe infection, in which the first injection did not cure the very extensive macular and papular eruptions and plaques on the lips, a second injection brought about the usual prompt cure. Three of these cases were injected the first time in the gluteal region with the same preparation No. XXII in acid solution, while the second and effective injection was one of neutral suspension. This certainly contradicts the opinion held by some that the neutral injection is not as efficacious. This has been further proven by my assistant, Dr. Siesskind, in his investigation of the behavior of the spirochetes, which showed that both preparations acted with equal promptness in producing disappearance of the spirochetes or in changing their biological character (slower movement, swelling). Two cases of extensive papular syphilis, which had not been entirely cured by an injection of 0.5 and subsequent administration of mercury, were reinjected after three weeks and a half, producing the usual results. I have often observed the fact, that an incomplete or sluggish cure under the treatment by mercury and iodide of potash was promptly completed after an injection of 606. A case of ulcerating gumma of the thigh the size of a palm of the hand healed about half after the first injection of 606, then removed stationary in spite of treatment by iodide of potash, and healed promptly after a second injection of the same dose 0.5.

The number of partial failures is infinitely small compared to the large number of prompt cures; I have now treated 1,050 cases. The number of reinjections for recurrences is also remarkably small. No doubt I have not seen all cases with recurrences in spite of the greatest care to do so, but I am of the firm belief that early recurrences are infinitely less than in the mercury treatment. Especially to be remarked is the insignificance of the recurrences in my cases. In the majority of cases only very small foci could be detected; the exception to this were two cases, in one case of originally severe syphilis I found fifteen small and much softer infiltrations and in another case, injected on June 29th with 0.5, a second like injection was given, because the Wassermann reaction was still positive on August 23d and he was suffering at that time from impetigo capitis.

Other reinjected cases were, one of periostitis; two of iritis; one of choroiditis; one a slight trochlear-paresis in patient 33, who had been injected with 0.3 on April 19th and who had also had six inunctions of each 4 grams gray ointment; one case of abducens paralysis and one case of angina in case 47. Another rather unusual case received a second injection; this was a strong, otherwise healthy man who had received 0.5 acid solution on June 16th for a primary lesion and papular syphilides, and who had on August 24th a curious attack of an aura ascending from the legs accompanied by loss of consciousness and biting of tongue. The Wassermann reaction was positive at the time of the second injection. In two cases, in the second and third months respectively after the injection, and with a negative Wassermann reaction occurred severe headaches which did not yield to usual headache remedies, but which were promptly cured by a second injection. In some of these cases a previous mercury treatment was unsuccessful.

Recognizing fully the severer relapses observed by others, we are of the opinion that these relapses were probably due to the setting free of encapsulated deposits by the remedy. These observations have been made in the late stages of cases treated with mercury in which the repeated courses of treatment had removed most of the spirochetes in the body. If this view is correct then the future course of syphilis should be much shortened. In our opinion all spirochetes which come in contact with the remedy will be destroyed, and the infiltrated areas, which contain encapsulated spirochetes softened, thus bringing these spirochetes in contact with the remedy. I therefore believe that we need not exceed the well established curative dose of 0.5—0.6 for men and 0.45 for women, which may be repeated in the infrequent relapses. Further experiences will have to teach us if the continued Wassermann reaction is the result of such latent



encapsulated deposits and is a sufficient indication for a reinjection.

All these observations prove that the dangers of hyper-sensitiveness to the remedy as well as a possible loss of effect upon the spirochetes can be but slight; especially is this so in regard to the latter point, because the remaining spirochetes had probably not come in contact with the remedy.

More difficult of explanation are those cases of primary lesions in which, after injection, eruption takes place. One case is that of a young colleague who had a rise of temperature on the day of injection, a condition which ordinarily does not occur any more; the temperature dropped to normal the following day, when there appeared a papulous syphilitic eruption which proved to have caused the fever. The eruption disappeared in a few days under the influence of the arsenobenzol circulating in the blood. A similar observation was made in the case of a woman suffering from a primary affection of the upper lip, who eight days after the injection and while the lesion was healing, showed a general roseola which entirely disappeared in a few days.

In the case of a student who had since March of this year an indolent syphilitic ulcer of the glans and inner aspect of the prepuce, as well as large indolent buboes, a rapid healing set in after an injection of 0.52 on June 5th, only a small, clean, granulating surface remaining at the tip of the glans. On August 17th a general roseola appeared on the trunk, palms of hands and soles of feet, which necessitated a second but successful injection.

In another case, an ulcer 5 cm. long by 3 cm. wide in the left peno-scrotal fold healing promptly after an injection of 0.5 gm. on July 20th. The injection had to be repeated, however, on August 16th on account of an extensive papulous eruption.

Two other similar cases have been reported to me from outside sources. Presumably the explanation of these cases is that the remedy did not readily penetrate the denser infiltrations. But we cannot entirely dismiss the thought that there may be biological forms of the syphilitic poison which the remedy cannot destroy.

Considering now the para-syphilitic manifestations, I have seen considerable improvement in a large number of cases with well established symptoms of tabes. In nearly all cases there was prompt improvement of the lancinating pains, the uncertain gait improved, also the bladder symptoms and difficult deglutition as well as improvement of the general sensibility; two trophic ulcers on the ball of the big toe were healed. Of special interest is the following case:

I. R., age 49. compositor. Had primary chancre fifteen years ago; two inunction periods; a year ago had mercury injections for red spots

on skin and ulcers on scrotum, which had to be discontinued, however, on account of diarrhoea. During the past two years has complained of uncertain gait specially in the dark, numbness in the legs, pains in fingers and back, feeling of band around waist, at times involuntary discharge of urine. Examination shows: slight ataxia, Romberg symptoms slightly present, patellar reflexes abolished, right pupil larger than left, pupils do not react to light but do to accommodation, sight normal, color vision normal for white, but considerably diminished for colors. Ophthalmoscope shows atrophy of both optic nerves, specially the right (Dr. Seligsohn). On August 8th patient received 0.5 of 606. On September 17th pain and numbness in legs have disappeared, uncertainty of gait in the dark decidedly better, urine not involuntary; slight ataxia and Romberg symptoms continue; *the patellar reflexes are decidedly present*; vision for colors somewhat better, the rest of the symptoms are the same as before but certainly not worse (Dr. Seligsohn).

Even if we should wish to consider cases like this as pseudo-tabes, in view of the return of the patellar reflexes, they would prove a new class of pseudo-tabes, which does not yield to mercury but does to Ehrlich's new remedy, analogous to our experiences in many syphilis manifestations of the skin. The above case is, however, decidedly in favor of the opinion expressed by Erb and Nonne, to the effect that in tabes there may exist syphilitic as well as sclerotic changes. Our case distinctly belongs to those cited by Adrian in which in addition to the tabetic symptoms there existed syphilitic manifestations in the skin and inner organs.

These same considerations apply also to some cases of paralysis, which perhaps more often than has hitherto been thought, should be classed as pseudo-paralysis, as described by Fournier, which at times might be cured by the new remedy when the mercury treatment fails. The new remedy should certainly be tried further in these cases, but under most careful and critical observation.

From all that has thus far been learned we find a very large field for the application of Ehrlich's remedy, which would only be restricted by the appearance of general or special toxic effects. I have now treated more than 1,000 cases by the subcutaneous or intramuscular injection of doses from 0.45 gm. to 0.6 gm. and have never seen any toxic effects. Slight degrees of arsenical poisoning have occurred in a few cases, such as gastric symptoms and atonics of the intestine, which may be explained by the well-known effects arsenic has on the contractile tissues of the mesenteric vessels.

Among the contra-indications of the use of Ehrlich's remedy have been mentioned weak heart and organic cardiac disease. I therefore

requested Professor Nicolai to examine a series of cases treated with 606, and he has given me the following report:

"I have examined 47 patients, who were about to be treated with Ehrlich's remedy, before injection, with reference to their heart action. Those cases in which there existed serious cardiac disease such as well marked valvular disease or considerable cardiac insufficiency due to myocardial or arteriosclerotic changes, were excluded which left 38 examined cases which were injected. Of these 38 patients, I have re-examined 27 after injection, some of them three or four times. These re-examinations took place immediately after, a few hours after, or several days after. In a few cases the heart was examined for some weeks. In all of these cases no deleterious effects upon the heart could be found; they were as stated, not cases with serious cardiac disease. The methods of examination were, Röntgen ray, blood pressure, electro-cardiogram, auscultation and subjective functional action of the heart. In about half of the cases there was a slight diminution of the cardiogram, a diminution which is more than the usual one found in healthy persons on different days. But on account of a slight increase of the cardiogram in some of the cases, and because this diminution and increase did not indicate better or poorer hearts I do not feel justified in taking them into serious consideration. Another finding is perhaps not so unimportant. Of the 38 cases seven had an increased blood-pressure, 150 to 180 m.m. mercury. Of these seven cases five were re-examined, and in four out of these five a diminution of from 20 to 30 m.m. was noted. The fifth case showed no change in blood-pressure. These findings deserve some consideration because in the cases with syphilitic changes in the aorta we find an increased blood-pressure, and because the results obtained would seem to prove that aortic changes are no contra-indication for the remedy. It cannot as yet be determined whether the reduction in blood-pressure in the four cases is a permanent one, due to a curative process of the vessel walls, or whether it is due to a specific poison effect of the remedy. Although as above stated, the severe cardiac cases were excluded, there were 12 cases injected whose hearts or vascular system were not free from disease. This high number is accounted for by the fact that Wechselmann only referred such cases to me in which the hearts were suspicious. In all these 12 cases no deleterious effects were observed."

Supported by these investigations I have dared to treat two cases of dilatation of the aorta with small aortic aneurism at first with doses of 0.3 and 0.1 respectively, without doing any damage. I have also treated successfully a man, aged 85, with extensive arteriosclerosis, suffering from a

primary sore of the prepuce and papular syphilitic skin eruption, the dose being 0.4 gm. I have grave doubts about treating cases with very weak and flabby heart muscle, such as we often find in tabes; equally so cases of stenosis, because I am afraid of the depression of arterial blood pressure which takes place in arsenical poisoning. But a weak heart is furthermore a contra-indication on account of the hyper-sensitiveness to the medicine found in some patients. This is shown, as I have already stated, in the high fever on the eighth or ninth day, reaching 40 degrees or 41 degrees and accompanied by scarlatiniform or other eruptions or erosive angina. This occurrence seems often very alarming, but has always disappeared in two to three days without doing any damage. In one case, which had been suffering for years from an ordinary nephritis which is not a contra-indication, this became hæmorrhagic during the fever but cleared up very promptly.

According to H. Meyer and Gottlieb (*Experimentelle Pharmacologie*, page 346) these occurrences are due to the damaging effect of the arsenic upon the capillaries. This was shown in a case of otitis media where the discharge became bloody, and in a case of herniotomy which showed an oozy bleeding some time after the injection.

The second important fear about the new remedy was in regard to damage to the optic nerve, on account of such effects by other arsenic derivatives. This fear has, however, thus far not been confirmed. I myself have never seen any sight disturbances, and Dr. Fehr, who has examined a great number of the cases treated by me, has never been able to observe any damage to the eyes from the injection. At first all cases with disease of the optic nerve were excluded; later some doubtful cases were treated. In my first paper I mentioned a case of recent optic neuritis which was injected without damage for recurrent syphilitic manifestations; subsequently we have the same results in two other cases. During the regular examination of the fundus by my colleague, Dr. Fehr, he found in about 2 per cent. of the cases of exanthematous syphilis "Neuritiden and Stauung's papillen" without sight disturbances. It is not improbable that the imperfect cure of such "neuritiden" later leads to degenerative processes of the optic nerve. In a single one of these cases we tried the Ehrlich remedy, and Fehr is under the impression that it has done good and he is no longer of the opinion that a recent neuritis acts as a contra-indication. I have, however, in six cases of either beginning or advanced optic nerve atrophy, used the remedy in the hope of arresting the progress of the atrophy. To all these patients the matter was carefully explained by Dr. Fehr and myself and their written consent obtained. In none of them was the nerve condition made

worse, so that further careful trials in such cases should be made.

One of the disagreeable after effects to be mentioned is necrosis, which I have observed recently more often than at first. Ehrlich has mentioned that these necroses occurred after injecting the chest muscles in birds, and it is reasonable to assume that such results may follow in man. The sensitiveness of the tissues to the remedy seems to vary greatly in different individuals. These necroses manifest themselves rather late, two to three weeks after injection, and are characterized by great sluggishness of progress, because they are surrounded by a wide zone of aseptic tissues which are damaged but not dead. It is wise to treat them on the expectant plan, because a portion of the damaged tissue may recover, and because active measures are followed by little success. We may hope that a better technique may obviate these objectionable after-effects.

In conclusion we may say that the first epoch in the test of Ehrlich's new remedy has been passed. It is proven that its value is great and that often it is indispensable; its dangers are small, certainly much less so than was at first thought. Further work with it and testing it patiently will show us its limitations. Viewed from every standpoint, the creation of chemotherapy, and through it, the discovery of this new remedy must be conceded to be one of the greatest achievements of science.

### THE EARLY DIAGNOSIS OF SYPHILIS THROUGH THE LIVING SPIROCHETAE PALLIDAE.\*

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THE spirilla form a distinct group of bacteria which presents special interest from the fact that they are but a step removed from the protozoa, which constitute the lower group of the animal kingdom, each organism consisting, as a rule, of but a single cell. The particular spirillum under consideration, the spirocheta pallida, has not yet been given a definite classification, although it is the consensus of opinion at present that it belongs to the protozoa.

These bacteria have a very active motion, due either to flagellæ, or as in the spirochetæ to a rotary, screw-like motion upon their axes. The first pathogenic spirillum to be discovered was that of relapsing fever, described by Obermeier in 1873. The spirillum of Asiatic cholera was discovered by Koch in 1883 in the intestinal contents of cholera patients.

The spirocheta pallida was discovered by

\* Read at the Eleventh Annual Meeting of the Lake Keuka Medical and Surgical Association, held at Grove Springs, Lake Keuka, N. Y., July 21 and 22, 1910.

Schaudinn and Hoffmann in 1905 and their results have been confirmed so repeatedly and by so many different observers that it is admitted by practically every scientific physician that the etiology of syphilis, for so many years a disputed battling ground, is at last definitely established.

To be sure it has not yet fulfilled two of the three laws of Koch which he regards as essential to the proof of the production of a certain disease by a specific germ or fungus, namely, the organism must be found in all lesions; secondly, it must be capable of growing upon some suitable culture medium and, thirdly, it must be capable of reproducing the original disease by inoculation of the living organism with these cultures. Thus far no growth of this organism upon culture media has been obtained and therefore no inoculation by cultures is possible, but two members of the same group, the spirocheta refringens and the spirillum Obermeieri (relapsing fever) have been successfully cultivated and the cultural growth of the pallida is, in all probability, merely a matter of time. When this is accomplished it will be an easy step to the manufacture of a vaccine and, providing this proves as efficacious as several of the vaccines at present employed, a tremendous advance in the treatment of syphilis will have been made and immunization after a suspicious coitus will become a possibility.

The following characteristics are amply sufficient to establish the causative relation of the spirocheta pallida to syphilis. First, it is found in all syphilitic lesions, even in the tertiary in small numbers, although these had previously been thought to be non-contagious and successful inoculation of apes therefrom has been obtained.

Second, it has been found in no other disease.

Third, its movements and appearance differ from all other similar organisms.

Fourth, with the successful use of mercury and the disappearance of the lesions spirochetæ can no longer be found in the neighborhood.

Fifth, the same organism is found in the primary lesion produced by the inoculation of monkeys, and, in the higher, anthropoid apes, in the spleen, liver, kidneys, etc.

In this connection, at the risk of being considered a propounder of fanciful theories, I will observe that this fact that syphilis, which is impossible or extremely difficult of communication to ordinary animals, can be transmitted to monkeys, producing a primary lesion, and in the highest types, constitutional syphilis, resembling in all details the disease in mankind, affords, in my opinion, valuable confirmatory evidence of the truth of Darwin's theory as to the evolution of species. So far as I am able to discover, I am the first to draw this deduction.

The microscopic diagnosis of syphilis can be made in two ways. First by staining, of which

only three of the forty or more methods need be mentioned, those of Goldhorn, Schereschewsky (a modification of the Giemsa stain) and the India ink method, the last being far the simplest. It has, however, of late been altogether discredited. The technique of all is rather complicated and the detection of the spirochetæ, owing to their thinness and very feeble staining properties, vastly difficult.

The new "dark-field" illumination originated by Siedentopf and Szigmondy, has simplified their detection immensely. The new condenser contains an opaque disc in the centre which shuts off from the microscope all the direct rays from the mirror, while the outlying rays are so reflected as to converge at a point slightly above the surface of a thin slide, so that bodies at this level appear as brilliantly illuminated objects against a dark background.

The necessary apparatus consists of a 1-12 or 1-16 oil immersion lens, the aperture of which has been reduced by an inserted collar; the dark-field condenser and a powerful source of light. A Welsbach burner will answer the purpose after a fashion; a Nernst light is much better, but the small arc light, manufactured by Leitz or Bausch and Lomb is essential to perfect results.

The lesion is first scrubbed with gauze moistened with sterile salt solution. The superficial layers are then curetted until serum and a small quantity of blood appear and the blood wiped away with dry gauze until only serum appears. If the lesion is then cupped by a small Beir apparatus the flow of serum is stimulated. This is taken up by a platinum loop or better by a capillary pipette and a small amount deposited upon a thin slide. A cover glass is applied and the edges sealed with vaseline to prevent evaporation and the access of air bubbles.

When the lesion is on the tonsil it is often extremely difficult to obtain serum, especially un-mixed with saliva or vomitus, owing to the patient gagging the instant the tonsil is touched, even with a cocaine swab. In such cases I have had uniform success by administering a small quantity of chloroform, having the patient inhale deeply through the widely opened mouth until a little "dopy." One gets in this manner a preponderating local anæsthesia.

The condenser must previously be exactly centred by means of its concentric rings, using a low power objective. In place of depositing several drops of cedar oil upon the condenser as previously advised, I have found it much more advantageous to place two large drops upon the bottom of the slide, opposite the specimen, as the liability to air bubbles is thus greatly reduced. A fresh drop is placed upon the bottom of each slide subsequently examined. A drop is then placed upon the cover glass, the slide is put upon the condenser, the approximate focal distance obtained and the moveable portion of the

condenser raised or lowered till the light is concentrated upon the specimen, after which the exact focus is obtained by the micrometer screw.

It requires considerable practice to do this successfully, but, when the proper technique is acquired, the vision revealed is of startling beauty. Innumerable minute, bright, dancing particles appear, showing the Brownian movement, the larger being the ordinary, the smaller the ultra-microscopic bacteria. The red blood corpuscles appear as halos of light, the central portion being invisible and, upon trying several fields, if our lesion is syphilitic and our technique perfect, we discover the spirochetæ pallidæ, which are certainly among the most remarkable objects the microscope has yet revealed.

They are absolutely perfect spirals, each turn being exactly equi-distant from the next. The whole organism measures 6 to 20 microns in length or one to three or four times the diameter of a red blood cell. The coils vary in number from five to fifteen or even twenty or more.

They are in active, incessant motion, which is of three different varieties, a revolution upon their own axes, a bending motion and a forward and back movement. Some of them glide rapidly out of the field, others, although just as active remain nearly stationary. Some of the tonsillar spirochetæ (not syphilitic) have a remarkably rapid motion to and fro longitudinally. The duration of these movements is extraordinary. I have kept specimens of the pallida at body temperature for over eight hours and found them still active, but had not until recently succeeded in keeping them alive over night, the vaseline, if kept warm, finally mingling with the preparation. I have been experimenting with different substances as seals and by the use of a mixture of one part of white wax and two parts of vaseline, heaped up around the cover glass, have been able to keep them alive from 10 P. M. to 9 A. M. By placing specimens in the incubator, with moist air, at body temperature, I believe they will retain their motion for twenty-four hours.

The spirocheta pallida is found in the untreated primary lesion, in mucous patches, in condylomata, in smaller numbers and with great difficulty in the macular and lean-ham colored syphilides and in papules; in practically all the tissues of the syphilitic fetus, including the bones and, in enormous numbers, in the liver and spleen; also in the cord and placenta.

In mucous patches of the mouth and tonsils they are found in the greatest profusion, often ten or fifteen in every field. In examining the tonsils, however, one must be constantly on his guard, for badly diseased tonsils contain myriads of spirochetæ of three or four different varieties.

In one case referred to me by Dr. Richards, of Rochester, N. Y., on account of tonsils which certainly appeared decidedly syphilitic, although there was little confirmatory evidence, the spiro-

chetæ were simply legion, some large and slow of movement, others of extraordinary activity, the latter, owing partly to their own movements and partly to the currents of the serum, seeming to chase each other along the channels between the blood cells, in a manner which was confusing to the eye and prevented accurate observation as to their size, number of their coils and character of their movements. None of the pallida variety could be found, but I could not regard this negative evidence as conclusive since the lesions had been vigorously treated with strong nitrate of silver solutions which would destroy the spirocheta pallida. The case has presented no specific symptoms, however, up to date.

For some time the "Doubting Thomases," of whom medicine possesses its full quota, denied the claims of Schaudinn and Hoffmann; some claiming that these organisms were only connective tissue fibrils; others that they were indistinguishable from the spirocheta refringens found normally in the human mouth and genitals. The former view has long since been abandoned and any trained microscopist can differentiate the two varieties of spirochetæ instantly after having once observed both in the same field. The points at the top of each spiral, which, being the most brilliantly illuminated, are often all that can be seen, are absolutely equidistant from each other, while the spirals of the refringens are very irregular, short and long spirals alternating, giving an entirely different picture. In addition their coils are larger and lack the extreme thinness of the pallida. Another point of distinction is that the movements of the pallida are incessant until their death, while the refringens seem to recognize the need of rest and are intermittent in their activity.

CASE I.—C. K., age 24. Referred to me by Dr. George K. Swinburne, of New York City, for a chronic, prostatic gonorrhœa. This patient, a traveling salesman, was to have seen me later, but came here from Elmira, N. Y., on December 12, 1909, to consult me on account of a sore in the sulcus which had appeared on December 5th. His last coitus was on November 9th.

I found a small ulcer, half as large as a pea, in the sulcus and very slightly enlarged inguinal glands. Upon examination by the dark-field method, the ulcer was found to contain spirochetæ pallidæ in great numbers as well as several of the refringens variety. He was immediately placed upon salicylate of mercury injections weekly, with the result that, up to date, he has presented no secondary symptoms whatever and the other glands have not enlarged.

CASE II.—H. A., 18 years old. Had had a long standing gonorrhœa, ending about November 23, 1910. Has had coitus at about weekly intervals since this date. He consulted me on January 2, 1910. At this time he presented an ulcer, no larger than a pin head, in the sulcus, which he said appeared three days previously.

In this minute lesion a small number of characteristic spirochetæ were found. This is the most recent and smallest primary lesion in which I have read of the spirochetæ being discovered. The patient was immediately placed upon injections of sapolentum hydrarg. And the ulcer healed in about ten days. About ten days later he disappeared and did not return until April 10th, when he presented a syphilitic at the edge of the frenum which had become ulcerated through the irritation of decomposing smegma; a very painful balanitis was also present. He said that, not seeing any symptoms, he had concluded my diagnosis was a mistaken one and had given up treatment after four weeks. He is now convinced as to his condition and is doing very well.

The history of this case has satisfied me that, in patients presenting themselves with primary lesions containing spirochetæ, the cases for immediate treatment must be carefully selected. In the first case they must be of above average intelligence and, secondly, they must have absolute confidence in the physician. If such a patient is told that, after a certain number of weeks he will have a general eruption, the fact of its appearance, at the time indicated, will convince him that he is suffering from a constitutional disorder and he will, as a rule, carry out his treatment faithfully. If, on the other hand, treatment is at once instituted and he gets no symptoms and feels perfectly well he is likely soon to question whether or not he ever had syphilis. The advantages of immediate treatment are certainly great, but we cannot afford to run the risk of turning loose unconscious syphilitics, both on their own and others' account.

CASE III.—Mrs. S. G., 34 years old, referred by Dr. M. Taplin. The patient, a divorced woman, had in December, 1909, a hard growth, never ulcerated, near the meatus. On January 15th she developed a severe tonsilitis and greatly swollen glands below the angle of the jaw. The other local physicians had made a diagnosis of tonsilitis; a Pennsylvania physician called it mumps; a laryngologist called it laryngitis and one physician called it syphilis.

*Status præsens.*—The patient presents a very slight fading eruption, hardly characteristic enough to pronounce it a roseola, normal inguinal glands and a severely inflamed throat with some whitish patches. Scrapings from these showed fairly numerous spirochetæ pallidæ.

CASE IV.—Mrs. J. A. C., 25 years old, referred by Dr. Thomas Buck, of Rochester. Her husband has had syphilis for five months. Four or five weeks ago she developed terrible headaches and later a severe sore throat. Has had rash on the body for two or three weeks.

*Status præsens.*—No trace of primary lesion.

All glands moderately enlarged, a roseola of unusually dark hue and ulcerating patches on both tonsils, which on curetting and examining by dark field method present spirochetæ pallidæ in enormous profusion, some fields containing twenty or more specimens.

CASE V.—May 12, 1910. F. H. J., 24 years old, referred by the late Dr. Elsner. Last coitus in January and February, both with condom. About the middle of February had a deep red purpuric patch as large as a pea on chest. Others soon appeared and the eruption spread over the whole body and extremities, several lesions being on face and scalp. Part of these develop an exudation, become pustular and scab over. When the patient called his limbs presented the picture of the tuberculide called folliculis. There was no trace of an initial lesion nor of any specific mouth trouble. The tonsils were reddened, presenting the ordinary appearance of a smoker's throat. On curetting and examining the serum numerous spirochetæ pallidæ were found.

CASE VI.—E. B., age 26 years, May 17, 1910. Referred by Dr. Mezger. Had *ulcus durum* four months previously. Abandoned treatment after four weeks. Returned with several mucous patches in mouth. From a lesion on the tongue fairly numerous spirochetæ were found and demonstrated four hours later, still active, at a meeting of the Monroe County Medical Society.

CASE VII.—J. W., 28 years old, May 19, 1910. Referred by Dr. George Burns. Last coitus about three months ago. Sore throat since two months. No lesions on penis. Throat had become gradually sorer till swallowing was extremely painful. Large mucous patch on right tonsil from which innumerable spirochetæ pallidæ were demonstrated.

CASE VIII.—W. B., 21 years old, May 21, 1910. Referred by Dr. C. M. Briggs, of Fairport, N. Y. History: About four months ago had two sores on the hard palate which lasted three weeks; were apparently healed for one month and then returned. During the past three weeks had developed several other lesions of mouth and throat. At present his cervical and brachial glands are moderately enlarged, inguinal excessively. Has had no eruption, to his knowledge, and shows no skin lesions. Has what are apparently mucous patches of the tonsils, lip and inner surface of right cheek. From the latter myriads of spirochetæ pallidæ were demonstrated. From the glandular condition I regard it as probable that the primary lesion was intra-urethral.

CASE IX.—E. L. T., 21 years old. Works in laundry. No coitus during past two years. Four months ago developed sore throat, pains in joints, canker sores in mouth and a rash. All

glands are now enlarged, inguinal most prominently, but no trace of chancre on penis, nor symptoms pointing to intra-urethral chancre. Several mucous patches of mouth, one of which showed spirochetæ in enormous numbers.

CASE X.—Mrs. F. C. K., 32 years old. No coitus with husband for eighteen months except three weeks ago. About three months ago while working in a road-house as servant acquired a severe sore on upper lip. This sore has improved of late but is still somewhat ulcerated. About one week ago noticed sores in genitals. To-day presents a typical chancre of upper lip, moderate roseola, and several mucous patches of external genitals, one of which was curetted and found to contain numerous spirochetæ.

CASE XI.—Miss R. N., 20 years old. Referred by Dr. James P. Brady, of Rochester, N. Y. Last coitus five and eleven weeks ago. The other party denies having any venereal disease. Five weeks ago took to her bed with fever and lumbar pains. Fine papular rash on body during past three weeks; scaly rash on face past two weeks. Sore throat and husky voice past three or four weeks.

On examination an ulcerating patch was found on right tonsil, containing a moderate number of active spirochetæ pallidæ. In this case also the port of entry could not be located. There was no evidence of a genital lesion or induration and the inguinal glands were not enlarged. The cervical glands were especially prominent and the diagnosis of a probable tonsillar chancre was made.

On reviewing these eleven cases we find that in only four was there anything like the classical picture of syphilis. In none of the other seven cases was it possible to find any trace of a chancre. The eruption in two cases would never have been diagnosed as syphilitic from its appearance. Several of these cases then are those in which diagnosis is not absolute but relative—a matter of opinion, apt to be revised by the next physician.

It is in just such cases that this new method, being absolutely reliable, in expert hands, as to positive findings, is tremendously important. These patients can be at once set right and the tortments of doubt and the mental pangs of syphilophobia, which, as a rule, exceed those of syphilis itself, at once dissipated. In addition, they can be immediately put upon a rational treatment, the success of which is surer the earlier it is begun.

Another vitally important matter is that of the early and complete eradication of syphilis through Ehrlich's "606" treatment. If by detection of the spirochetæ pallidæ we diagnose a syphilitic chancre in the first weeks of its existence, before the germs have invaded the skin and the deeper glands and tissues, excise the chancre and put the patient under this treatment,

we shall have nearly or quite 100 per cent. of immediate cures. Excision of the chancre is advisable because living spirochetæ have been found in some indurated chancres after treatment by the "606" method.

If Section 79 of the Page Bill, which, to a certain extent, regulates prostitution, at least as carried on by street walkers, in New York City, is to be enforced, there can be no question that it is the duty of that city to subject every woman, apprehended for accosting men and subsequently found to be suffering from syphilis to the "606" treatment. The detention and treatment of these cases until free from contagious lesions, even if for the full year provided by the statute, carries no guarantee that such a lesion may not break out the next week or month, while the new treatment apparently does. The cost of such detention as well as its demoralizing effect upon the character of the less vicious offenders should also be considered.

Needless to say, perhaps, is that no case should be subjected to this truly heroic treatment without a positive diagnosis. Previous to its establishment by the appearance of secondary symptoms, opinion as to the specific character of a chancre should not be relied upon: the detection of the spirochetæ or a positive Wassermann reaction is the only sufficient proof.

### CASES OF GONORRHOEAL ARTHRITIS TREATED BY GONOCOCCUS VACCINES.\*

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#### CLINICAL HISTORIES.

**C**ASE I.—A. H., woman, 29 years old, married.

January 2, 1909, patient entered the Washington Heights Hospital. The left ankle was swollen, bluish red, tender and painful, the pain extending up the leg and thigh. There was no history of gonorrhœa obtainable, but a pyosalpinx was suspected. Diagnosis, acute arthritis, probably gonorrhœal.

*Treatment.*—Salicylates were given with no effect on pain.

January 8th.—Vaginal discharge appeared, containing gonococci.

February 1st.—Twenty-five million gonococcus vaccines obtained from the laboratory of the Health Department of New York City were injected into the buttocks, no constitutional symptoms resulting.

February 6th.—Thirty million bacteria were given. Two hours after injection patient complained of severe pain in ankle, which lasted 24 hours. Pain in left inguinal region occurred.

February 10th.—Vaginal discharge stopped. Operation, cystic ovary removed, no pus found.

February 21st.—Thirty-five million bacteria injected, pain returned in joint in few hours; 5 hours later, throbbing pain in left leg.

February 26th.—Forty million bacteria injected; 6 hours later, pain and swelling in ankle, lasted 24 hours, the severest pain since the injections were begun.

March 2d.—Fifty million bacteria were injected. Pain in 5 hours, not so severe; lasted 48 hours.

March 5th.—Left inguinal glands swollen, soft and tender, rise of pulse and temperature. The pain was paroxysmal.

March 7th.—Sixty million bacteria injected, no pain in legs, can move them freely; 24 hours after injection the glands were painful.

March 13th.—Seventy million bacteria injected. Pain began 2 hours after injection, lasting about 7 hours.

March 18th.—No pain, able to walk. Discharged cured, except for stiffness in joints. Patient left the hospital and went to Sweden.

The blood examination, made daily, showed from 8,000 to 9,000 leucocytes and an average of 70 per cent. polynuclears and 1 per cent. eosinophiles, in other words, normal, with little appreciable change after the administration of the vaccines.

CASE II.—J. R., woman 35 years, U. S., single, dressmaker.

Patient was admitted to the Washington Heights Hospital in April, 1909. Family history and personal history, good. Not alcoholic. Leucorrhœa a year ago and just before present attack of joint trouble. Present history: Began six weeks before admission with pain in ankles, knees and left arm. The arm was swollen, red, shiny and tender, very painful, wrist and elbow involved.

Physical examination shows the left elbow and wrist swollen, red, tender and painful, the overlying skin shrivelled.

Vaginal examination shows an endocervicitis with a yellow, sticky discharge from the cervix in which gonococci were present. The attempt to make an autogenous vaccine was unsuccessful. Diagnosis, acute gonorrhœal arthritis.

April 21st.—Fifty million of the stock culture of gonococcus vaccines were injected; 12 hours later severe pain in the affected joints occurred. Previous to this the knees and ankles had become involved.

April 26th.—Fifty million bacteria injected, no pain resulting.

May 2d.—Sixty million bacteria injected, pain increased in both feet.

May 5th.—Seventy million bacteria given, and the pain increased in the heels and ankles for 12 hours and then diminished.

May 10th.—Eighty million bacteria injected.

\* Read before the Medical Section of the New York Academy of Medicine, October 18, 1910.

The shoulder joints had now become involved, the elbows and all the fingers.

May 16th.—Ninety million bacteria were injected. Pain increased in the right shoulder.

May 20th.—One hundred million bacteria were injected, no pains occurred.

May 24th.—One hundred and ten million bacteria were given and pain increased in the shoulder and knees.

May 30th.—One hundred and twenty million bacteria injected; pain 24 hours after injection.

June 4th.—One hundred and thirty million bacteria injected; pain in knees increased. The involvements of nearly all the large joints in the extremities was complete, the pain very severe.

Permanganate and bichloride douches were not neglected as part of the treatment, and the vaginal discharge was steadily diminishing. No discharge on June 7th.

June 10th.—One hundred and forty million bacteria injected; pain in joints increased.

June 15th.—One hundred and fifty million bacteria injected. The leucocytes on admission were 14,000, with 74 per cent. of polynuclear neutrophiles. The leucocytes diminished gradually with a relative diminution of polynuclear until May 23d, when there were 10,000 and 67 per cent. polynuclears, and on July 1st 8,000 with 68 per cent. polynuclears. Moderate anemia was present. Guaiacol had been applied locally, and aspirin, codeia and iron given internally. Rest in bed. Patient was discharged July 1st with no pain nor tenderness in joints which were stiff. She was able to walk. We have been unable to trace patient since, but considered her cured.

CASE III.—R. R., female, 26 years. Stenographer, married. Admitted to Washington Heights Hospital, December 22, 1909. No history of gonorrhœa obtainable, but an acknowledgment of an induced abortion a few weeks before admission was obtained. The left knee became swollen, red, tender and painful on December 18th. She was admitted four days later. Examination showed a severe arthritis of the left knee. There was no vaginal discharge. She had had a previous treatment of two injections of Torrey's anti-gonococcus serum with no results.

January 5th.—Vaginal discharge containing gonococci appeared.

January 7th.—Twelve million stock culture of gonococcus vaccines were injected. Five hours later a burning of skin and pink papular eruption occurred over the knee, which extended over the body and arms.

January 8th.—Breasts pain, bloody vaginal discharge with soft cervix.

January 13th.—Eighteen million bacteria were injected, no reaction.

January 15th.—Twenty-four million bacteria were given followed by some pain in the joint.

January 17th.—Thirty million bacteria were injected.

January 20th.—Thirty-six million bacteria were given, pain occurred in knee after seven hours.

January 28th.—Forty-two million bacteria were injected.

January 31st.—Forty-eight million bacteria were given 3½ hours after pain occurred in knee, lasting 5 hours; severe, stinging pains in muscles and back of knee followed.

February 2d.—Fifty-four million bacteria were injected, followed by pain in 2½ hours.

February 5th.—Sixty million bacteria given followed by pain. The vaginal discharge stopped.

January 30th.—There was pus in the urine until February 1st.

February 13th.—Seventy-two million bacteria given followed by no pain.

February 16th.—Seventy-eight million bacteria injected.

February 18th.—Eighty-four million given, pain 4 hours afterward occurred.

February 21st.—Ninety million bacteria were given, pain 2½ hours afterward occurred. The circumference of the left knee was ½ inch less than that of the right. The joint contained a very slight amount of fluid and was not movable. No cast was used. Ichthyol and ice were applied locally and the salicylates had been given with no effect. She had had frequent attacks of gastritis with vomiting during the stay in the hospital.

March 2d.—No gonococci were obtainable from vagina or cervix. The knee showed no fluid, but a considerable thickening of the serous membranes and bursæ, a slight tenderness of the flexor cords and active and passive motion to 100 degrees of a circle and no pain. The patient was up and walking for ten days, and discharged apparently cured. After going around for two weeks some pain returned and on March 17th thirty million bacteria and on the 19th ninety million were given, after which she had pretty good function of joints with no pain. On March 25th examination of the joint showed no deformity. The leucocytes increased in number under treatment. There were 7,200 leucocytes and 66 per cent. polynuclears on admission; 13,500 leucocytes with 70 per cent. polynuclears on January 9th and 12,200 with 69 per cent. polynuclears on February 13th. Cultures from the cervical discharge in this case were made for an autogenous vaccine. These were unsuccessful on account of the inability to procure a pure culture.

During the past year there have been but few reports of the treatment of acute gonorrhœal arthritis by the gonococcus vaccines. Previous to this reports of good results following the administration of the anti-gonococcus serum have been given by Rogers, Torrey, Swinburne, Perez, Miro, Herbst, Dunavant and others. Wright,



Pardoe, Douglass, Freeman, Wells, Fleming, Cole, Meakins, Irons, Hamilton and Cooke have experimented with vaccines and seen a large sphere and Thomas has had fine results.

Dr. Ransom<sup>1</sup> had no results in applying the treatment to chronic gonorrhœal arthritis.

Shumway<sup>2</sup> used the vaccines in gonorrhœal arthritis and iritis and recommended it in large doses.

McOscar<sup>3</sup> reported a case cured in 16 days by the Burroughs and Welcome vaccines.

Swinburne<sup>4</sup> has had only one failure in treating early cases by the serum and also by the vaccines, giving P. D. and Co.'s vaccines in doses of 50 to 100 million.

The treatment of gonorrhœal arthritis is now limited to a local one of the original gonorrhœal focus situated usually in the genital tract and as about every physician will agree is a non-operative one of the affected joints. Results of surgical interference upon the joints has not been generally productive of good results. The ideal treatment is to attack the gonorrhœa which has been carried through the system to its points of secondary infection, as in the cases under consideration, to the joints. If this can be done early, before the joints become disorganized and the bone and cartilage attacked, good if not perfect joints should be obtained. Immunity in any bacterial infection is what we are striving for. Vaccines produce an active immunity by stimulating the body to produce for itself a large amount of the immune substance. In giving the vaccine we presume that the body is not already overwhelmed by the poison of the disease. This condition, I think, we can take for granted in the ordinary cases of gonorrhœal arthritis.

The conclusions drawn from these cases are as follows:

1. When the dose of the vaccines is sufficiently large "reaction pain" occurs in the acutely affected joints from 2 to 12 hours after the injection and lasts from 5 to 24 hours.

2. There was no pain in the unaffected joints. This occurrence of "reaction pain" in joints affected by the gonorrhœal inflammation may be of diagnostic import.

The late Dr. Ransom<sup>1</sup> of this city had considered this, before this society last April, in his presentation of a series of gonorrhœal arthritis treated with gonococcus vaccines.

3. The treatment should have two months' duration and an observation for a longer period.

4. The beginning of treatment early in the disease is essential.

5. The leucocyte count varies and is apparently no index in the treatment of the disease.

6. The giving of large doses of vaccines up to 100,000,000 or more is necessary.

7. The local treatment of mucous membranes affected by the gonococcus should be given and continued as heretofore.

8. Autogenous vaccines are a failure in women on account of the great difficulty in obtaining pure cultures.

These autogenous cultures are not necessary as any reliable active stock cultures can be used successfully.

I wish to thank Dr. William H. Park for his advice and aid in furnishing the vaccines used in the treatment of these patients.

#### REFERENCES.

1. C. C. Ransom—Transactions of the Medical Section, *N. Y. Academy of Medicine*, April 19, 1910.
2. E. A. Shumway—Treatment of Gonorrhœal Iritis and Arthritis by Vaccines, *Ophth. Record*, Chicago, 1910, XIX, 246.
3. J. McOscar—The treatment of Gonorrhœal Rheumatism with a Vaccine. *Lancet*, London, 1909, II, 1498.
4. G. K. Swinburne—The Therapeutic Value of Anti-Gonococcus Serum and the Gonococcus Bacterius, *Medical Record*, 1909, XXVI, 687.

#### OPENING ADDRESS OF 1910-11 AT THE COLLEGE OF MEDICINE OF SYRACUSE UNIVERSITY.

By JOHN VAN DUYN, A.M., M.D.

SOME five thousand years ago, more and less, a familiar spectacle in the open places near the temples and markets of the cities around the eastern end of the Mediterranean Sea, was the litters bearing the sick. They and their attendants anxiously awaited the comforting word of the passer-by that told them of some past experience of their own or of others afflicted in like manner; and, telling of the means of cure, inspired hopes of relief and life. From what we know of the age we may easily imagine that one told of the power of the Gods; another, of some one or more of a thousand charms possessed by material amulet; another appealed to superstitious jargon; while others in varied ways eagerly preyed on the poor sufferers, converting their faith into gold.

Then came the time of temple-worship, when the almost exclusive privilege of curing the sick was confided to the priests. Sickness was the chastisement of the Gods; and, of course, its cure was to be obtained by propitiation of the offended Deity, or by the direct efficient power of some other one of the Celestial hosts. The temples were filled with the sick, and their treasures and the pockets of the priests overflowed with the gold of those who owed their cure to their faith. Again we may easily imagine what history teaches us, that imposition and crime were more at home in the temple than religion.

From the earliest time, however, there were the all merciful skeptics. They were infidels at heart and believed in the operation of natural laws. They appealed to the laws of cause and effect in Nature, and, by adopting and educating the parents of science, became the heralds of its birth. Science offered an escape from the old

faith and many took advantage of it. Just as in devotion the eyes of the faithful are turned to the image of a Saint in whom the virtues made their home, so we of our day looking back and reviewing the evolution of scientific medicine see the incarnation of it all in Hippocrates and call him the father of medicine. The real father of medicine, he who first tried to relieve pain or bind a wounded limb, was born in the earliest of the dawn of human life. We must not forget that when Hippocrates was holding his clinic at Cos, Egypt had come much farther on the right road, and her physicians had already adopted the extremest specialization. There was no universal substitution of the methods of healing then any more than to-day, for then Apollo, Æsculapius, Isis and Imhotep were still the alluring Gods of the healing art, and their priests received the more substantial rewards.

The great school at Alexandria, teaching the observation of Nature, was only a side show. The masses knew nothing of that school or its pupils. The human mind knew little or nothing of natural laws. The breeze that wafted the mariner to his haven was the breath of a favoring God. Thunder was the voice of Jupiter, and disease that wasted cities was the means of Divine vengeance. With this almost universal faith as to the cause of the phenomena of nature there lived and slowly grew the power of the human mind to observe and reason. The shape of the earth, the rising and setting of the sun, the origin of clouds and the cause of material disease were reasoned out in accurate expression and became established truths.

Farther on in the evolution of society and the race there occurred a subsidence as it were, and much that had been learned was lost in the great wave of superstition and ignorance that made the darkness of the middle ages. Even now, through this, there still lived the germ of true knowledge and while nations were being awakened and society rearranged here and there, a genius braving martyrdom proclaimed the old and added new truth and so did something toward laying the foundation of the structure of our present scientific knowledge.

To-day men are free to think, to investigate, to proclaim their discoveries. They are free to criticize and set right the dicta of others. They have no one or nothing to prevent the exercise of this great freedom save conscience and the disapproval of the opinion of others. Did you ever reflect how long this age of full liberty has existed? The calculation might be favored somewhat by the reflection that within the memory of many of your teachers it was held to be blasphemous to deny that the earth and all therein was made in six days of twenty-four hours each, and the early preachers of the doctrine of long periods of time for creation were ostracized? Probably half of the number here in this room

saw the sun of the day before the birth of the theory of evolution. The emancipation of man was yesterday. To-day the childish race wrapped in swaddling clothes is dazzled by the light. Man is learning fast. His senses, yet clouded, falsifies his reason. He heaps up facts and only plays with them. To-morrow man will come to the power of knowledge.

In the first talk of the college course of 1910-11, what could be more proper than a reference to the conditions of our coming together? This year made a new era in the history of this college. About forty years ago we told the student all we thought he ought to know in about eighteen weeks. Fearful that he might forget some of what had been communicated to him, or, it may be, that we thought we had not yet secured sufficiently ample reward, after a few months what we had already said was repeated and then the student was certified to the public as having absorbed our wisdom and was a doctor. Soon we repented of this and established a three-year course, and made something of laboratory instruction. Then again we repented of the folly of so much so-called "didactic teaching," and in laboratory and by the bed-side made more of observation. Then medical teaching really began. Now that the means of teaching have so far been perfected, we again take a new step forward. We shut our doors to those who having eyes see not, who having ears hear not, nor understand. We have come to know that the perfection of the student is as much a present need as the perfection of the teacher and the means of teaching. Whether we shall escape the presence and offence of the deaf, the blind and the untutored savage remains to be seen.

Why has this step been taken? We need not dwell on the problematical effect of intelligence as a shutter out of criminal instinct, nor on the commercial advantage of the profession's now restricted membership. But for us as teacher and student we may safely glance over the subject of education for the student's good, and talk a little about its striking features.

As we have said above, our process of what we are pleased to call education has been greatly extended and entirely changed. To open the doors of the profession it now takes four years. The shibboleth that passes you comes to you as a race nurtured in the laboratory—that cannot be learned by being whispered in the ear. We are learning more and more the meaning of education. We are learning that men telling a fact to a student is not educating him. The student is told or he reads the fact, which is simple acquirement. With this, education begins. The senses are taught to observe, the perception is made accurate and finds appropriate expression in language and the judgment from the record of his observation is given the habit of being just. And, his hands are made the ready servant

of the will. For all time, till now, we have been blind to the distinction between knowledge of fact, in the broadness of the phrase, and memory of authority. It is the awakening to this distinction that is now revolutionizing ideals, aims and methods in the courses of our common school, college and university. Fifty years ago men listened to authority, and were told what to believe. Now a statement made by the professor is met by the student's questions: Can you prove it? and, how do you know it? The laboratory becomes the source of truth and the life of the student. The laboratory is the crucible in which theories are tried and the grain of truth is extracted. This is the life of the doctor and its habits are continued into his future. Observation at the bed-side alone becomes the criterion of judgment.

At this point we come face to face with the problems of education. What are its aims? And by what means does it work? The very term, "education" suggests a point of departure and a point of arrival, the elaboration of some thing and the realization of a crude possibility. The new era of our school consists in the exclusion of those who have had no training of sense or judgment, and who have not learned the language of the correct expression of truth. Our students, henceforth, must have been somewhat exercised in sense-perception, induction and deduction and the recording of experience. Just here is where we shall yet meet with serious difficulty. Although the schools and colleges prior to professional study do something toward these objects, yet the most of their effort is devoted to training the scholar to memorize the work of others. The more readily the student reproduces like the parrot, the more satisfactory is he to his teacher. The student has not yet learned the art of measuring the phenomena of things by the sense, and hence it follows as a matter of course that as the data are incorrect the judgment is not justified in the event. The remedy for all this seems to be at hand and we are now about to take advantage of it.

There is still another aspect of medical education that forces itself on us most seriously. I refer to the enormous field of medicine which we are supposed to lead you into and have you become acquainted with. Every feature of man's anatomy, his physiology and the changes which are effected by all the external and internal conditions of life which lead to changes within the bounds of so-called health or beyond in the state of disease—all these and their correlation of infinite variety furnish a literature which no man can wholly read, and studies that cannot be encompassed by any one man's life time. Specialization has become a necessity, for he who would know approximately any one feature of medicine must devote his life to it, and be busy at that.

Sometimes I feel that the student is to be

pitted. His college studies are under the direction of specialists. Few of these have scant idea of the meaning of that correlation of medical studies that leads to the production of an all-round medical man. With the specialist the vision narrows itself to one biological feature and to him satisfaction is expressed only when the student shows himself possessed of a mass of detail, to acquire which most of his time and energy has been devoted. However desirable it may be, for certain purposes, to know very much of everything, it is certainly true that the gaining of a mass of detail knowledge must be at the expense of that higher and infinitely more valuable knowledge of general principles. This is the knowledge which presumes an acquaintance with the leading facts in all departments of study. It excludes refinement in acquisition and shuts out hair-splitting discussions. It is the successful teacher who knows what to insist on and what to neglect. How fortunate the faculty that has an ideal of education to which each teacher contributes his part to the perfected result! Team work on the part of a college faculty in the education of the student is as essential for success as it is in the playing of athletic games.

Certain it is, however, that in a school of medicine the work of the teacher must have an aim varying with that of the student. How differently must a professor, say of anatomy, teach, both in quantity and quality, should a pupil choose to study the structure of the human body for the purposes solely of satisfying the requirements of a knowledge of zoölogy; another pupil to satisfy the needs of ophthalmology, and still another who aims to acquire the knowledge regarded as essential to the general practice of medicine! I can easily see how such a differentiation in a class of students might lead to confusion unless plans of instruction in all their details are well worked out.

The narrow specialist will not waste his energy on the impertinence of the knowledge of distant parts; the student aiming at the exact knowledge of a zoölogist goes to the finest detail and makes much of comparisons, while he who works for the requirements of a general practitioner scorns all else than that which to his mind satisfies purely practical needs.

Besides all this there is the just necessity of the student of which he is as yet unconscious. I refer to that education which should be prior to the attempt to acquire medical facts, which is essential to independent study and which is at the foundation of medical practice—the education of the sense. Till now nothing has been made of this. The great readers of disease, as manifested on and off the bed are possessed of high endowments of sense and judgment and hardly need instruction. Then comes a large class of those who, by application after student

life, acquire considerable skill in observation. And then we meet the class of medical men, the great majority of our brethren, who are blind and deaf and whose speech does not reflect the truth. The aim of the medical teaching in a medical school should be to give the student the power of observation. Without this the graduate is not a doctor—he is a mocking bird.

Our present aim is to assume the responsibility of your education and after a given time present you to society as practical physicians. In so doing we hope to present the main and essential truths of fundamental studies and the main and essential truths which more closely belong to your future practical work. We hope to have you see the importance of well established principles and memorize facts that have been established as truths. We hope not to overburden you with the unessential and not to insist on the mastery of detail that is unstable and that may safely be left to your future study.

If there be one thing on which I would insist now more than on any other, it is that you yourselves take full advantage of every opportunity to observe the effects of different physical states on the outward phenomena that come to your sense. Don't wait till the schedule time of the third year, but now make serious work of observing and recording. Devote your energies to observing the effects of remedies and be careful to sift what you hear so as to go from these benches fitly armed with substantial knowledge of the means of relief and cure. Without these—the power to observe man and a ready knowledge of therapeutical means, your other knowledge, however vast, will be fruitless. With them your lives will have been given as blessings to humanity.

## **Medical Society of the State of New York.**

### AMENDMENTS TO THE CONSTITUTION AND BY-LAWS.

The following proposed amendments to the Constitution and By-Laws were submitted at the Annual Meeting held in Albany, January 24-25, 1910, and are published in accordance with Article IX of the Constitution.

Amend Article II of the Constitution by adding a new Section 4, as follows:

"SECTION 4. There shall be two forms of membership, namely, active and associate. Active members shall pay dues, as provided in the by-laws, and be entitled to all the rights of property and every other privilege of the Society. Associate members shall pay no dues and shall be entitled to no rights of property and receive none of the privileges of the Society. Any active member may be admitted to associate membership for any reason which may be considered sufficient by a Board of Censors of a County Society, upon a majority vote of the active members present at any County Society meeting."

Amend Chapter VII, Section 1 of the By-Laws to read as follows:

"The following shall be the standing and annual committees of this Society:

"The standing committees shall be one on Legislation and one on Public Health.

"The annual committees shall be one on Scientific Work and one on Arrangements.

"The standing committees shall be elected by the House of Delegates; the annual committees shall be appointed by the President.

"The remaining portion of this section to remain as at present. That Section 2 become Section 4, Section 3 become Section 2, and Section 4 become Section 3."

Amend Chapter VIII of the By-Laws so as to transfer Madison County from the Sixth to the Fifth District Branch.

### NOTICE.

"Dr. A. Jacobi, Chairman of the Committee on Prize Essays of the Medical Society of the State of New York, desires to announce that the date for the presentation of prize essays in competition for the Merritt H. Cash Prize and the Lucien Howe Prize, has been extended from December 1, 1910, to March 1, 1911."

### CORRECTION (DIRECTORY).

The address of Dr. C. J. Patterson should be Owego, not Oswego.

### NEWS ITEMS.

#### HONOR TO DR. JACOBI.

Dr. Jacobi has received the honorary degree (honoris causa) of M.D. from the University of Bonn, from which he obtained his first diploma fifty-nine years ago, and was also in the same week elected an honorary member of the great Medical Society of Berlin on the occasion of its semi-centennial celebration.

### COUNTY SOCIETIES.

#### MEDICAL SOCIETY OF THE COUNTY OF ERIE.

REGULAR MEETING, OCTOBER 24, 1910.

The meeting was called to order by the President, Dr. Grover W. Wende.

Thirty-nine new members were elected and one reinstated.

The Board of Censors, through the chairman, Dr. John H. Grant, reported having driven a metaphysician out of business; brought an action against two physicians charged with being habitual drunkards and aiding and abetting violation of cocaine law; brought an action against a medical institute since become defunct; secured the imposition of a fine of \$50 on each of three other medical fakirs; and secured the arrest of another, besides investigating numerous alleged medical law violations, all going to show the activity and success of our Board of Censors.

Several minor amendments to the By-Laws were enacted.

Following the business session Dr. Wm. T. Shanahan, Superintendent, Craig Colony for Epileptics, at Sonyea, N. Y., presented a most interesting and carefully prepared paper together with charts representing the work at Sonyea. The paper was discussed in a manner to further increase the interest.

Upwards of 150 members attended the meeting, most of whom remained after the meeting to enjoy the collation.

**RICHMOND COUNTY MEDICAL SOCIETY.**

REGULAR MEETING AT STATEN ISLAND ACADEMY,  
OCTOBER 9, 1910.

"Arterio Sclerosis," Louis F. Bishop, M.D., New York.

**MEDICAL SOCIETY OF THE COUNTY OF SCHENECTADY.**

REGULAR MEETING, COUNTY COURT HOUSE, NOVEMBER 9, 1910.

"Syphilis, an Historical Sketch with a Demonstration of the Spirocheta Pallida," Warren B. Stone, M.D., Schenectady.

**QUEENS-NASSAU MEDICAL SOCIETY.**

SEMI-ANNUAL MEETING, ELK'S HOME, LONG ISLAND CITY, NOVEMBER 26, 1910.

SCIENTIFIC SESSION.

"The Diagnosis of Ectopic Gestation," C. F. Adams, M.D., New York.

"Some Facts in the Pathology and Treatment of Thyroid Disorders," S. P. Beebe, M.D., New York.

"Certain Forms of Coughs and Their Treatment," J. A. McCorkle, M.D., Brooklyn.

**THE MEDICAL SOCIETY OF THE COUNTY OF NIAGARA.**

ANNUAL MEETING, NOVEMBER 15, 1910.

The following officers were elected: President, W. A. Scott, Niagara Falls; vice-president, C. L. Preisch, Lockport; secretary, J. H. Miller, Niagara Falls; treasurer, H. U. Cramer, Lockport; delegate to the State Society, W. A. Scott.

**BOOKS RECEIVED.**

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

**THE SEXUAL DISABILITIES OF MAN AND THEIR TREATMENT.** By ARTHUR COOPER, Consulting Surgeon to the Westminster General Dispensary; formerly House Surgeon to the Male Lock Hospital, London. Second edition, revised and enlarged. Paul B. Hoeber, 69 East Fifty-ninth street, New York. 1910. Price, \$2.00 net.

**A COMPEND OF THE ACTIVE PRINCIPLES WITH SYMPTOMATIC INDICATIONS FOR THEIR THERAPEUTIC USE.** By HAROLD HAMILTON REDFIELD, A.B., M.D., Associate Professor of Therapeutics, Bennett Medical College, Chicago; Professor of Therapeutics and Physiology, Reliance Medical College, Chicago. The Clinic Publishing Company, Chicago, Ill. 1910.

**A MANUAL OF NURSING.** By MARGARET FRANCES DONAHOE, formerly Superintendent of Nurses, and Principal of Training School, Philadelphia General Hospital. Illustrated. New York and London. D. Appleton and Company. 1910.

**MOVABLE KIDNEY, ITS ETIOLOGY, PATHOLOGY, DIAGNOSIS, SYMPTOMS AND TREATMENT.** By WILLIAM BILLINGTON, M.S. (Lond.), F.R.C.S., Senior Surgeon to Out-Patients, Queen's Hospital, Birmingham. With twelve full-page plates and illustrations in the text. Cassell and Company, Ltd. London, New York, Toronto and Melbourne. 1910.

**AN ANATOMICAL AND SURGICAL STUDY OF FRACTURES OF THE LOWER END OF THE HUMERUS.** By ASTLEY PASTON COOPER ASHHURST, A.B., M.D., Prosector of applied anatomy in the University of Pennsylvania; Surgeon to the Out-Patient Departments of the

Episcopal and Children's Hospitals of Philadelphia; Assistant Surgeon to the Philadelphia Orthopedic Hospital; Fellow of the College of Physicians of Philadelphia, of the Philadelphia Academy of Surgery, etc., etc. The Samuel D. Gross Prize Essay of the Philadelphia Academy of Surgery, 1910. Lea & Febiger. Philadelphia and New York. 1910.

**THE PRACTITIONERS' VISITING LIST FOR 1911.** An invaluable pocket-sized book containing memoranda and data important for every physician, and ruled blanks for recording every detail of practice. The Weekly, Monthly and 30-Patient Perpetual contain 32 pages of data and 160 pages of classified blanks. The 60-Patient Perpetual consists of 256 pages of blanks alone. Each in one wallet-shaped book, bound in flexible leather, with flap and pocket, pencil with rubber, and calendar for two years. Price by mail, postpaid, to any address, \$1.25. Thumb-letter index, 25 cents extra. Descriptive circular showing the several styles sent on request. Lea & Febiger, Publishers. Philadelphia and New York.

**THE PREVENTION OF SEXUAL DISEASES.** By VICTOR G. VECKI, M.D., Ex-President San Francisco German Medical Society; Member American Urological Association, American Medical Association, California State Medical Society, etc. With introduction by WILLIAM J. ROBINSON, M.D. The Critic and Guide Company, 12 Mt. Morris Park, West, New York. 1910. Price, \$1.50.

**THE MODERN VIEW OF SYPHILIS AND ITS TREATMENT.** By GUSTAV BAAR, M.D. (Vienna). Member German Congress for Internal Medicine; Member American Medical Association, etc. New York and London. D. Appleton and Company. 1910.

**BOOK REVIEWS.**

**PRACTICAL OBSTETRICS.** By E. HASTINGS TWEEDY, F.R.C.P.I., Master of the Rotunda, and G. T. WRENCH, M.D., late Assistant Master. Second Edition, Oxford University Press. London. 1910.

In the present edition of this readable little book Mr. Tweedy describes in a lucid manner the policy and practise at the Rotunda. While the methods employed are not wholly in accordance with American teaching, a personal experience of 30,000 cases must be given consideration.

A lack of system in the general arrangement is noticeable. He places the management of labor before the mechanism. In nomenclature he confuses presentation with position. His consideration of the toxemia of pregnancy and eclampsia is practical but not scientific. We are in accord with his position, as to the delivery of the fetus in interpartum eclampsia, but such conservatism in the light of present pathology, as is advised in antepartum toxemia, can hardly receive the indorsement of American obstetricians.

The administration of large doses of morphine instead of chloroform for the control of the convulsion does not appeal to us, for chloroform and oxygen may be administered for long periods without ill effect.

His treatment of abortion is not surgical and is open to criticism; for instance on page 91, paragraph 6, he says, "When symptoms arise in the mother, pallor from the loss of blood, rigor, fever or pulse, empty the uterus." One can hardly agree that it is good obstetrics to wait for the occurrence of morbidity.

We note with surprise that it is not the custom at the Rotunda to use Crede's method in instilling nitrate of silver into the eyes of each child at birth.

In incarcerated retroversion with pregnancy the routine employment of the Trendelenburg posture for dislodgement will frequently make abdominal incision unnecessary. We have never found suspension of the uterus to be required after freeing the organ from its incarceration, and in light of the complica-

tions at the time of labor said to be produced by suspension, would advise against it.

His chapters on Inertia Uteri, Malpositions of the Fœtus, Placenta Previa and Contracted Pelvis, are admirably presented and practical. The book is worth a perusal for these alone.

The book as a whole deserves commendation, and is valuable because it is the practical deductions and methods of an individual of wide experience, who has been trained in non-surgical obstetrics.

The topography is good and the illustrations fair.

J. O. POLAK.

**DUODENAL ULCER.** By B. G. A. MOYNIHAN, M.S. (London) F.R.C.S., Senior Assistant Surgeon at Leeds General Infirmary, England. Octavo of 379 pages, illustrated. Philadelphia and London. W. B. Saunders Company. 1910. Cloth, \$4.00 net; Half Morocco, \$5.50 net.

This work forms the latest of the author's admirable contributions to abdominal surgery. The subject is treated in his usual clear and practical style, giving the reader an accurate picture of a not uncommon malady which but a decade ago was classed among the rare diseases. Thanks to the labors of our own countryman, W. J. Mayo, as well as those of the British surgeon now so fully set forth in the present volume, duodenal ulcer has come to be recognized as of almost as frequent occurrence as ulcer of the stomach. Instead of the diagnosis of duodenal ulcer being very obscure, Moynihan here tells us that it may be made "with a degree of accuracy not exceeded in the case of any other abdominal disease."

The author believes the acute ulcer of the duodenum resulting from surface burns to be of much more rare occurrence than commonly supposed, and that it is not an antecedent cause of the chronic ulcer. He also finds tuberculous ulcer of the duodenum to be very rare. The melæna of infancy is often due to ulceration of the duodenum.

The most important chapter of the work is that on the diagnosis of the chronic duodenal ulcer. The clear and pithy description of symptoms is born of long and perfect familiarity with the disease, made complete by the living pathology of the operating table. He emphasizes the importance of the careful history in the accurate diagnosis. He states that he has "never operated on a case of protracted or recurrent 'hyperchlorhydria' without finding a duodenal ulcer." Also, that it is rare to find any excess of acidity in such cases where a test meal has been given. Careful study of this chapter, and that following on differential diagnosis, cannot fail to leave with the reader a well-defined picture of the disease.

In the discussion of the cure of chronic ulcer, the author finds it difficult to determine the place for medical treatment. As cases present themselves, the disease is so advanced that surgical treatment is practically always indicated. In the large majority of cases, gastroenterostomy, combined, or not, with excision or infolding of the ulcer, is most satisfactory. Excision alone may be practised where no narrowing of the lumen may result from the suturing, but at present it is rare to get the ulcer before it has become too extensive. Resection of the duodenum is rarely required. In perforation of the ulcer, closure by suture was sufficient in about half the author's cases, and in the remainder gastroenterostomy was also performed.

The pathology is discussed at length in a well-illustrated chapter. The volume closes with a detailed appendix containing all the cases operated on by the author up to the close of 1908. There were 137 male patients and 49 female. Among these but four deaths resulted. Of 167 cases traced as to the after-results, 147 were reported as cured, 18 were improved, but one was unimproved, and one was doubtful.

The volume is the evidence of remarkable work in a newer field, and will form another milestone in the advance of modern surgery.

R. W. W.

**GYNECOLOGICAL DIAGNOSIS.** By WALTER L. BURRAGE, A.M., M.D., Fellow of the American Gynecological Society; Member of the Obstetrical Society of Boston; Consulting Gynecologist to St. Elizabeth's Hospital; Formerly Visiting Gynecologist to St. Elizabeth's and the Carney Hospitals; Electrotherapeutist and Surgeon to Out-Patients, Free Hospital for Women; Clinical Instructor in Gynecology, Harvard University, and Instructor in Operative Gynecology in the Boston Polyclinic. Cloth, \$6.00 net.

The author in closing his introduction says: "Experience teaches that finality in diagnosis is not always possible in gynecology. . . . Our object is to reduce the uncertain cases to a minimum." Has he succeeded?

The gynecologist without a diagnosis is like a mariner without a compass, going he knows not where.

The writer of such a book, speaking from experience, must have had large observation, and that rightly interpreted will determine its real value.

This book is written from the clinical standpoint and does not burden the reader with unnecessary or confusing technicalities, and the general practitioners and gynecologists alike will find the teaching suggestive, instructive and authoritative. The charm of the book lies in its directness and simplicity.

Nowhere is the simplicity more apparent than in the few instruments the author uses for purposes of diagnosis.

In referring to the uterine sound he justly says: "On the whole, the most valuable of instruments used in diagnosis," quite contrary to the trend of modern teaching.

The accurate acquaintance of the author with symptomatology gives his opinions and deductions a force and finality unsurpassed if equaled by that of any diagnostician in gynecology.

The necessary discrimination between benignant and malignant diseases of the cervix and uterine body is condensed in Chapter XVI and leaves the reader with a clearer conception of accurate differentiations than some writers portray at great length.

He approves Kelly's method of anterior colpotomy and division of the anterior wall of the uterus when needful, and gives the microscope generous pre-eminence as a means of "sure diagnosis."

The chapter on diagnosis of ovarian disease as differentiated from that of other intro-peritoneal conditions together with that on the menopause affords opportunity for the display of those attributes of insight and analysis and gives pre-eminence to a work which will long remain an invaluable one to the student and the gynecologist.

It may therefore, be affirmed that the author has succeeded in reducing the uncertain cases to a "minimum."

W. B. C.

## DEATHS.

WILLIAM S. ACKERT, M.D., Poughkeepsie, died November 7, 1910.

SAMUEL ALEXANDER, M.D., New York City, died November 29, 1910.

THEODORE R. BURGTOFF, M.D., New York City, died November 14, 1910.

EDGAR H. DOUGLAS, M.D., Little Falls, died October 29, 1910.

JOHN FREDERICK HALLER, M.D., Brooklyn, died December 3, 1910.

CHRISTIAN A. HERTER, M.D., New York City, died December 5, 1910.

ALBERT P. JACKSON, M.D., Oakfield, died November 9, 1910.

FRANK N. LEWIS, M.D., New York City, died November 13, 1910.

THOMAS G. NOCK, M.D., Rome, died November 28, 1910.

SETH G. SHANKS, M.D., Albany, died November 5, 1910.

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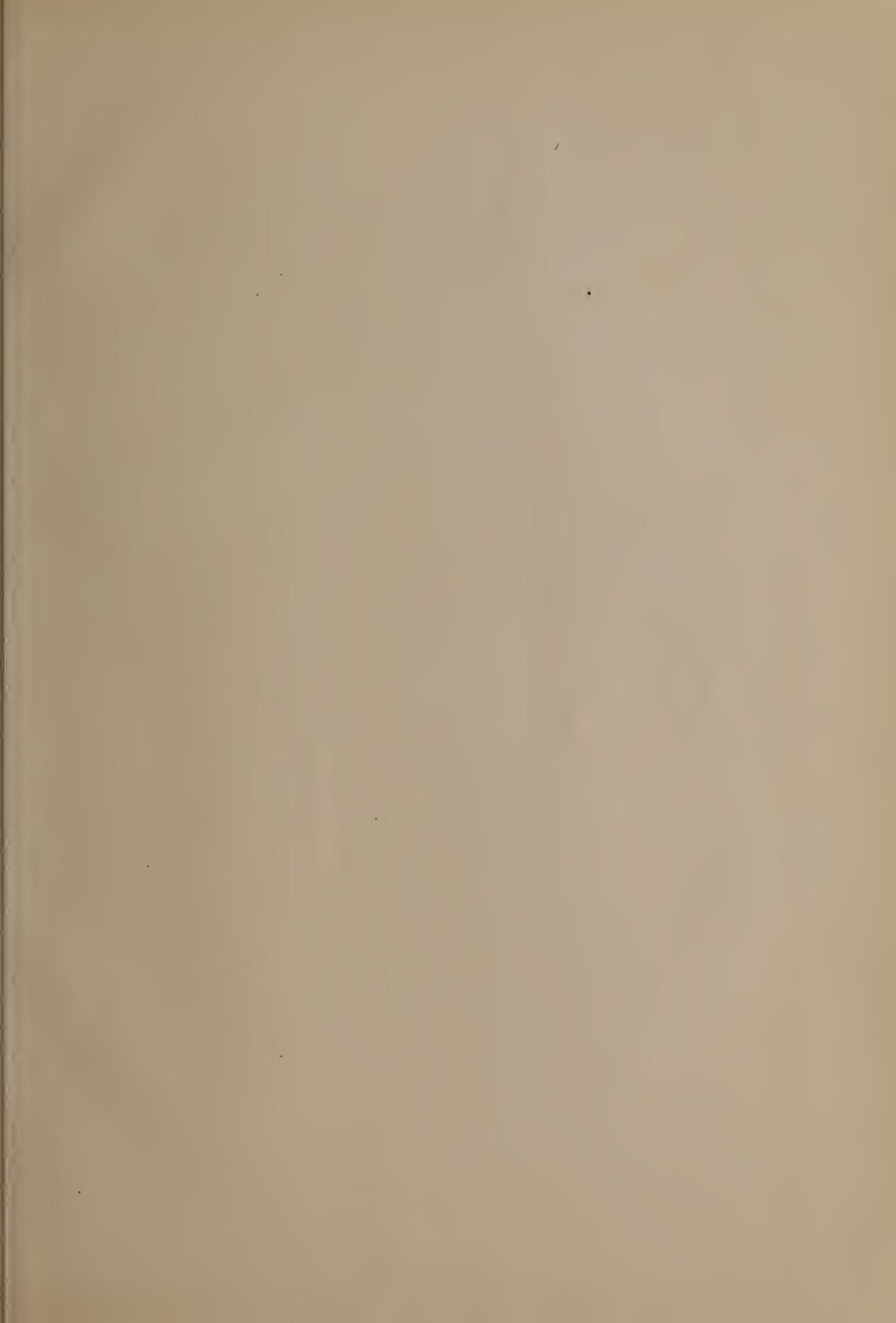
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