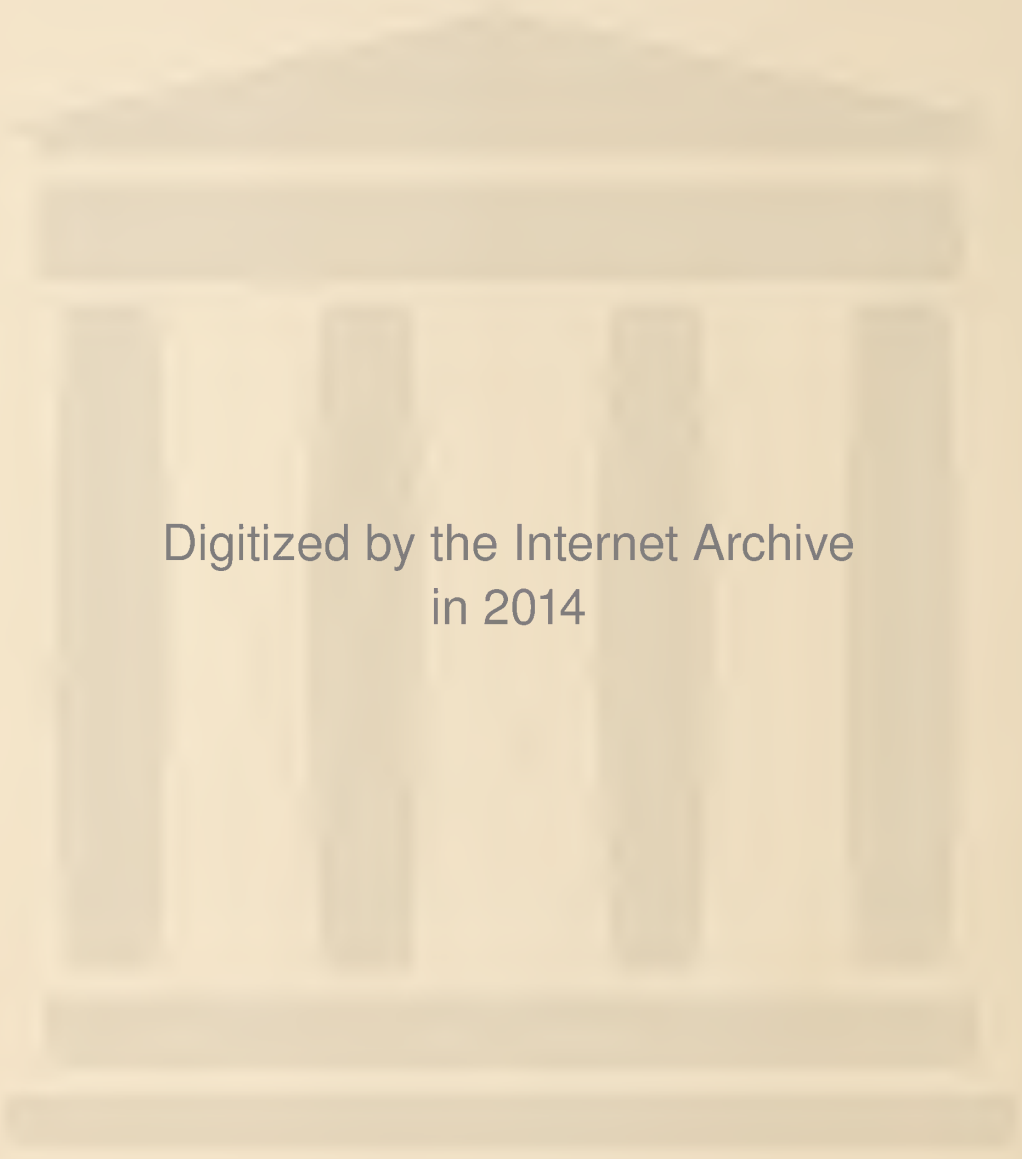

VIRGINIA MEDICAL SEMI-MONTHLY.

(RICHMOND.)

VOLUME XV.

APRIL, 1910—MARCH, 1911 INCLUSIVE.

THOROUGHLY INDEXED.

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INDEX TO VOLUME XV.

[APRIL, 1910—MARCH, 1911, INCLUSIVE]

VIRGINIA MEDICAL SEMI-MONTHLY

This Index is divided into TWO PARTS---FIRST, **Index of Contributors;** SECOND, **Index of Subjects;** in which italicized lines represent original articles.

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INDEX OF SUBJECTS

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Book Notices.

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Societies, Boards, Etc.

THE
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Original Communications.

NERVE SUTURE—WITH EXHIBITION OF CASES.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.
Professor of Principles of Surgery and Clinical Surgery in the Medical College of Virginia; Surgeon to Memorial Hospital.

Taking advantage of the meeting of the Tri-State Medical Association of the Carolinas and Virginia in Richmond, I thought it might be of some interest to show the clinical results of some operations upon the nerves. It would be almost impossible to show patients at a meeting in any other place than my home city, and I have made a strenuous endeavor to collect sufficient cases in order to show that the results in this branch of surgery, while sometimes disappointing, are, on the whole, quite satisfactory. Of course, this pre-supposes that certain principles are followed in the operation and that the case has not been too long neglected.

Physicians are too much inclined to the opinion that if a limb or group of muscles is paralyzed, as result of an injury to a nerve, there is no hope for permanent recovery. Other things being equal, the earlier the repair is instituted, the more satisfactory the results; yet, successful cases of nerve suturing have been reported years after an injury. In such instances, when the muscles have atrophied, recovery will be slow under the best conditions, and the after treatment should consist largely in the application of some proper form of electricity by one who is skilled in its use. The unwise use of this therapeutic agent may actually do more harm than good in the after treatment, but when it is administered by an expert in this method of treatment the greatest benefits can be obtained.

The indications for suturing nerves naturally point to gentleness and accuracy in approximating the nerve stumps and in placing the sutures. An abundant incision should be made and the dissection should be kept as dry as possible, for staining of the tissue with blood often obscures portions of the nerve and results in unnecessary traumatism in identifying the nerve itself or its important branches.

Strict asepsis is also important, as suppuration after nerve suture either results in total failure or seriously impairs the results. This is as we would expect, for the high-grade nervous tissue is more profoundly affected by suppuration and its destructive process than a lower grade simple tissue of higher resistance would be. The nerve trunks should be dissected free with a sharp knife for a sufficient distance to obviate tension when the nerve stumps are brought together. The nerve should either be handled with the fingers, or else forceps should catch its sheath and not the body of the nerve for fear of crushing some of the fibres. If some of the nerve has to be resected a sharp knife should be used and the nerve cut square across. The first and most important suture is placed through the center of each stump a short distance from its end. This should be tied so as to bring the stumps in apposition, but without too much tension. Other sutures are placed around the nerve as reinforcing sutures and penetrate the sheath only. In a large nerve, more than one suture may be used to transfix the nerve. For suturing material, I use twenty-day chromic catgut No. 0. The needle is either a Hagedorn or a fine intestinal needle. If possible, the line of suture should be covered with a flap of fascia or muscle to prevent contraction around the sutured area. This procedure, which has been recommended by Murphy, is very valuable.

Suturing of nerves may be divided into, first, simple suture, when two ends are approximated; second, flap operation, when a portion of the nerve is split off as a flap in order to

*Read at a meeting of the Tri-State Medical Association of the Carolinas and Virginia, Richmond, Va., February 17, 1910.

bridge over the defect; and, third, nerve implantation or grafting of nerves. Sometimes another method is utilized in which a foreign substance, such as a nerve from another animal or strands of catgut, is used with the idea that the regenerating nerve fibres follow along this implanted foreign substance. This method should never be resorted to if any other method can be used, as it is unsatisfactory, and of doubtful efficiency in most cases.

Aside from the technic, there are other factors which influence the result in suturing a nerve. Nerves regenerate more readily, other things being equal, in a young and healthy individual than in an elderly person of weak constitution. A sharp cut will repair more quickly than a lacerated injury. Certain nerves in the same individual repair more readily than others. Better results may be obtained, for instance, after suture of the musculo-spiral nerve than after suture of the median or ulnar.

I had hoped to show you six cases, all of whom have been operated upon within the last six years. There are others whom I could not hope to show because they live so far from Richmond. After rather strenuous efforts I only succeeded in having three patients come. All of these live in the vicinity of Richmond.

The first case is that of a blacksmith, thirty years of age, who was referred to me by Dr. C. A. Blanton, of this city. The patient was in good health and there was no history of previous disease bearing upon the injury. On August 3, 1908, a piece of steel broke from his hammer and penetrated the lower part of the right arm, completely severing the musculo-spiral nerve. Symptoms of complete paralysis of this nerve below the point of injury appeared at once. There was typical wrist-drop and anesthesia over the skin supplied by the radial nerve. An operation performed the following day showed the nerve to be cut sharply in two. Its ends were cut across with a sharp knife and sutured in the manner just described. A piece of muscle was brought across the wounded nerve and fastened in this position with catgut. The arm was put up in plaster of Paris. Improvement was gradual, but has apparently been complete. Six months after operation extension of the hand was complete and forcible and the area of anesthesia had practically disappeared. As you see, the muscles are fully developed, and outside of the scar there is nothing to show that there had ever been any injury to the musculo-spiral.

The next case I wish to show you is that of a patient who was referred to me by Dr. William West, of this city. In August, 1909, he suffered an injury just below the left elbow. There was no fracture of the bone, but there was a tingling and partial loss of sensation over the region supplied by the radial nerve. There was marked paresis of the extensor muscles of the left forearm. This condition continued without apparent improvement and during cold weather he found it impossible to extend his hand. There was no distinct anesthesia but the patient complained frequently of numbness of the arm over the region supplied by the radial nerve. Just before operation a firm mass was felt over the course of the musculo-spiral above the elbow. This had the consistency of scar tissue and was about one-half an inch in diameter. There was some atrophy of the extensors of the forearm. Operation was performed on December 6th, under ether. It was somewhat difficult to expose the musculo-spiral because of the scar tissue that had resulted from the injury to the soft parts. After exposing the nerve a localized mass of scar tissue was found attached to the tissue immediately over the sheath of the nerve. The nerve trunk was apparently uninjured, but when the forearm was flexed contraction of the muscles pressed this mass of cicatricial tissue onto the trunk of the musculo-spiral. The nerve was dissected free and the cicatricial tissue removed. A flap of muscular tissue from the neighboring muscles was brought over the nerve in order to prevent the reformation of scar tissue over the nerve. The patient has improved markedly since the operation and is much gratified at his condition. Extension of the hand is more easily accomplished and there is almost complete absence of the disagreeable sensations of numbness and tingling over the region supplied by the radial. The scar shows that the wound healed primarily and you can see that the patient has complete extension of the hand.

The third case is that of a man twenty-eight years old, who was stabbed in the left arm about five weeks ago. The wound was in the inner aspect of the upper part of the left arm. There was profuse bleeding and the physician who attended him at the time applied a ligature, which controlled the hemorrhage. Im-

mediately after the injury the patient lost the power to flex the hand and fingers and sensation was abolished over the palm of the hand and palmar surface of the fingers, as well as over the dorsal surface of the little finger and part of the ring finger. In other words, there were symptoms of complete paralysis of the median and ulnar nerves.

The patient was operated upon under ether on November 4, 1909, and the median and ulnar nerves and the obliterated brachial artery were found bound together in an indistinguishable mass. The incision was continued below where the median nerve was normal and the median was in this manner traced up to the point of injury. The proximal end of the median was found and the ends cut across with a sharp knife. The intervening tissue was dissected away and after loosening the median nerve it was found that its ends could be sutured by raising the arm and carrying it slightly across the chest. The sutures were placed in position and were tied with the arm elevated and carried partly across the chest. It was impossible to approximate the ends of the ulnar under any condition, so a slight nick was made in the median and the distal end of the ulnar was sutured into the median at this point. The wound healed primarily. The arm was kept in a similar position to that employed after fracture of the clavicle. As you can see, the patient has some slight power of flexion and says that he feels there is improvement already. There is a sensation of tingling over the region supplied by the median nerve and the circulation to the hand and fingers is unquestionably better than at the time of operation. Considering the extent of the operation, I think the result so far has been entirely satisfactory and we may reasonably look forward to continued improvement.

Three other cases I had hoped to show you, but they did not appear, though they had been requested to report here to-day. One is a colored man with a history somewhat similar to that of the last case, except that there was marked suppuration following the stab. The operation was delayed hoping to get rid of the suppuration and performed when the tissues were apparently in good condition. The result, however, was not satisfactory and there has been very slight improvement.

A fifth case of complete paralysis of the left median and musculo-spiral following an injury I have previously reported in the *Journal of the American Medical Association,* of March 3, 1906. I have been unable to locate him recently, but when last heard from, about a year after the second operation, he had good use of his left hand and forearm, as the result of two operations, in the first of which the median, which was injured, was grafted into the intact ulnar. A year later the musculo-spiral was grafted into the median. The patient has been able to resume work on the farm, using his left hand satisfactorily.

The sixth case that I had expected to show you was probably detained for some reason, as I had fully expected that she would be present. It was a suture of the recurrent laryngeal nerve. This nerve had been injured by a bullet wound three months before the suture. Dr. C. M. Miller, Professor of Laryngology in the Medical College of Virginia, examined the patient the day before the operation and reported that all of the muscles of the larynx normally supplied by the left recurrent laryngeal were completely paralyzed. Two other reports from Dr. Miller were made. One a few weeks after the recurrent laryngeal was sutured showed some improvement. More than a year after the suture Dr. Miller reported that the muscles were entirely restored. So far as I have been able to learn, this is the only case of suture of the recurrent laryngeal nerve on record. A full account of this case was read at the meeting of the Southern Surgical and Gynecological Association in December, 1909.

303 *West Grace St.*

REPORT OF UNIQUE CASE OF FRACTURE OF SPINAL PROCESS.

By FRANK LEE BISCOE, M. D., Washington, D. C.
Assistant to the Professor of Anatomy, Georgetown University Medical School, etc.

A white boy, seventeen years of age, while playing in a game of base-ball, and in the act of running, attempted to slide, and in doing so his head came in contact with the leg of an opposing player.

There was pain in the region of the neck and slightly restricted motion of the head to the right; pain accompanying movements of the head in this direction.

A slight swelling appeared on the back of the neck to the right of the median line and on a level with the fourth cervical vertebra, and pressure on this spot caused pain. There

was no evidence of interference with circulation in the vertebral artery; no paralysis and no cutaneous anesthesia.

The accompanying picture shows a fracture of the right transverse process of the fourth cervical vertebra, with the fragment pointing upward.

This fracture was treated by means of a thick crinoline collar covering the entire neck. Recovery is complete.

Fracture of Transverse or Lateral Process of Fourth Cervical Vertebra, Indicated by Arrow.

This fracture is of interest in that it is of rare occurrence; and also from the fact that it would seem that a force of sufficient intensity to fracture the transverse process of a vertebra, would cause a fracture through the body of the vertebra, with injury to the cord, and produce serious symptoms.

"The Farragut," Seventeenth and I Streets.

HEREDITARY CRIMINALS—THE ONE SURE CURE.*

By CHARLES V. CARRINGTON, M. D., Richmond, Va.
Surgeon to the Virginia Penitentiary.

Dr. Oliver Wendell Holmes, with that wonderful faculty of his for saying the right thing in a most forceful way, says "the best way to train a child is to begin with his grandfather." Herbert Spencer, one of the greatest philosophers and thinkers, says "that to be a good animal is the first requisite to success in life, and to be a nation of good animals is the first condition to national prosperity."

We may become a nation of good animals if we direct the same intelligence to the breeding of human beings that we do to the improvement of the breed of our domestic animals. The begetting of children is the highest of all human functions, and carries consequences that beggar description. To a very great extent the child is molded before he is born. There is overwhelming evidence to show how greatly the welfare of the child depends on the general physical and emotional health of the parents, and that the child's fate may be determined by some physical or mental weakness, or some emotional trouble at conception, or during pregnancy. In from fifty to sixty-five per cent. of the inmates of our insane asylums we have the authentic history of hereditary insanity. The same enormous per cent. along hereditary lines applies when we examine the antecedents of our idiots, imbeciles and degenerates.

Not all crime is a direct result of heredity. Environment is a powerful factor to be considered. The potency of heredity as a factor is often questioned by the laity, who contend with much force, that environment is everything. But "atavism" or the tendency of nature "to return to type" that tendency that causes the once cultivated grass plats to return to broom sedge if left alone for a period of years, has come to be recognized generally by scientists as the most potent causal factor in crime—"the sins of the fathers shall be visited upon the children unto the third and fourth generation," —a fearful proposition, isn't it? God be thanked that our forbears were healthy and clean, mentally and physically, and make us clean, mentally and physically, so that our descendants to the third and fourth generation may rise up and call us blessed.

People who have given, and are now giving, earnest thought and prayerful effort to the reformative side of the criminal problem, because they realize that in the past, and in the very near past, too, that the punitive side has been too long to the front, and that much that was harsh and brutalizing in the treatment of criminals should never have been tolerated in a civilized world, are facing the fact, and are not attempting to dodge either, that crime, degener-

*Read before the Tri-State Medical Association, Richmond, Va., February 15-17, 1910.

acy and vagabondage, are surely on the increase in the United States. It is interesting to say the least to go over the following table of figures showing the ratio of criminals, just criminals, not the insane or the inmates of almshouses, but the inmates of the prisons of the United States. This table is from the census reports of the whole country.

In 1850 there were 6,737 prisoners, the ratio to population being 1 in 3,442; in 1860 there were 19,086 prisoners, the ratio to population being 1 in 1,647; in 1870 there were 32,901 prisoners, the ratio to population being 1 in 1,171; in 1880 there were 58,609 prisoners, the ratio to population being 1 in 855; in 1890 there were 82,329 prisoners, the ratio to population being 1 in 757; in 1900 there were 133,280 prisoners, the raito to population being 1 in 586; and following out the same ratio for 1910, the present census, we may expect a much lower ratio than one in 500.

The criminal expenses, as shown by the same census reports, are overwhelmingly enormous. Leaving national figures for a moment let us scan the figures showing the admissions to the Virginia Penitentiary, and see how they have increased by leaps and bounds:

In 1902 there were 487 new convicts.
In 1904 there were 518 new convicts..
In 1906 there were 594 new convicts.
In 1908 there were 786 new convicts.
In 1909 there were 794 new convicts.

Punishment alone as a specific for crime is a failure. The horrors of the Siberian prisons rather increased the number of Nihilists. The comparative ratio of criminal population in England and the United States is as one is to thirteen. England has kept, and keeps her criminal population down to a minimum, by inflicting capital punishment for crimes which we in the United States punish by a more or less short prison sentence. England at least held the breed down to reasonable limits by killing the criminal and stopping that especial breed. During the sixteenth century there were more than a hundred offences punishable by death in England, and as the years have rolled on and the world become more civilized and humane the offenses punishable by death have been very slowly curtailed, until now eighteen classes of offenders against the law may receive the death sentence in England. We, in the United States never have had more than a half-dozen different offenses punishable by death, and in these days of paid alienists and jury flimflammers, it is very rare that we have the death sentence meted out. So we see punishment, rigorous, harsh, brutal, does not, has not, stopped the harvest of criminals. We know education does not rid us of, or decrease the crop of criminals. Many, very many, of our criminals are splendidly educated. When the educated man or woman becomes a criminal, generally they set no bounds to their criminal wanderings, and regarding neither God nor man, they are like the raging lion, seeking anything or anybody whom they may devour.

I have shown that crime is on the increase in the United States and in Virginia. I have shown that punishment, imprisonment, education, reformative measures of all sorts are but factors in the reduction of crime and degeneracy, and only stem the tide to a limited extent. I have shown the fearful part that heredity plays in the lives of criminals and degenerates—possibly just here it would be convincing to some to give more concrete examples of the part that heredity plays in our lives. No paper on hereditary criminals would be complete if we did not mention the two Jukes sisters—two illegitimate prostitutes of New York State—whose descendants have been carefully enumerated and followed through five generations, the number of individuals being 709; of the females more than 52 per cent. were prostitutes, while the normal rate of prostitution should have been 1.66 per cent., according to Lombroso; the fact is, the whole family was one of criminals, prostitutes, vagabonds and paupers, and it is estimated that this one family cost the State more than a million and a half of dollars during these five generations, and they are still costing in increasing ratio.

There are families in Virginia who have been constantly represented on our penitentiary rolls from grandfather to son, and now to grandson, and it is time, full time, that this hideous reproduction of criminals should be stopped.

The question of heredity has been further reduced to cold figures by Prof. Poellman, of Bonn University, in his investigation of the descendants of a confirmed female drunkard, who died early in the nineteenth century, her descendants were traced through six generations, and numbered about 800 persons; of these 107 were of illegitimate birth; 102 were

professional beggars; 64 were inmates of almshouses; 181 were prostitutes; 76 were convicted of serious crimes, and 7 were convicted of murder; the total cost to the State of caring for this woman's pauper offspring and punishing her criminal progeny, was reckoned at $1,206,000—and this expense has increased and continued in geometric progression to this day—for the fecundity of the irresponsible is notorious; to them children appear to be rather an asset than a liability, if indeed they ever give the subject a thought.

By way of contrast, a similar research has been made into the history of the famous Edwards family, of New England. This family descended from strong, religious ancestors, embraced many of the distinguished men of our national history—1,394 were traced in 1900—through five generations. Of these, 295 were college graduates; 13 were presidents of our greatest colleges; 65 professors in colleges; 60 doctors; 100 missionaries and clergymen; 75 officers in army and navy; 60 prominent authors; 100 and more lawyers of note; 30 judges; 80 held public offices of trust; 1 vice-president of the United States; 3 United States senators; 1 president of Pacific Mail S. S. Co.; several governors and members of Congress, mayors of cities and ambassadors to foreign courts; 15 railroad presidents; in fact, almost, if not every department of social progress have felt the impulse of this healthy family, and it is not known that any of them were ever convicted of crime.

We might cite specific instances by the dozen of inherited physical blemishes—but our case seems to be proven even to the most unthinking and uninformed—viz: that heredity is the greatest causal factor in crime. If this be only true in part, instead of being true in full effect and fact, we are fearfully derelict in our duty to coming generations if we do not take some forceful, direct humane steps to reduce crime, and the number of criminals by restricting procreation—stopping the breed in certain classes.

There is now pending in the Virginia Legislature the following bill, modeled after the Indiana law, which was passed in 1907. Dr. H. C. Sharp, of Indiana, was the father and backer of the measure before his Legislature, and in securing its passage, and during three years demonstrating by nearly 500 operations its usefulness, he has made himself a name amongst the leading criminologists and humanitarians of the century.

SENATE BILL NO. 298.

To prevent procreation by confirmed criminals, idiots, imbeciles and rapists.

Whereas, heredity plays a most important part in the transmission of crime, idiocy and imbecility; therefore,

Be it enacted by the General Assembly of Virginia, That on and after the passage of this act it shall be compulsory for each and every institution in the State, entrusted with the care of criminals, idiots and imbeciles, to appoint upon its staff, in addition to the regular institutional physician, one skilled surgeon of recognized ability, and one alienist of recognized ability, also the secretary of the State Board of Charities and Corrections, whose duties it shall be, in conjunction with the chief physician of the institution, to examine the mental and physical condition of such inmates as are recommended by the institutional physician and board of managers of said institutions. If, in the judgment of this committee of experts and the board of managers, procreation by any of said inmates is inadvisable by reason of said inmate being a confirmed criminal, a rapist, an idiot or an imbecile, and that there is no probability of improvement of the mental and physical condition of said inmate, it shall be lawful for the said surgeons, or either of them, to perform such operation for the prevention of procreation by said inmate as shall be decided safest and most effective, said surgeon, or surgeons, to receive no additional remuneration: provided, however, that in no case shall the consultation fee for surgeon and alienist be more than five dollars to each expert, to be paid out of the funds appropriated for the maintenance of such institution.

The enactment of this bill into law and the proper enforcement of its provisions would be the one sure cure for the ever-increasing horde of vagabonds, degenerates and criminals. If such a bill were the law of the land, in fifty years crime and degeneracy would be decreased by at least fifty per cent. This is a bold statement, but I earnestly believe in the truth of it. Sterilization by vasectomy is the sure, safe and humane remedy. This operation is very simple and easy to perform. It could not endanger

life when done by proper persons, and the bill absolutely safeguards this point. Resection of the vas deferens or the fallopian tube does not arrest the sexual development. This has been fully proved by doing the operation on young animals before they reached the period of puberty. That there is no atrophy or cystic degeneration has been satisfactorily demonstrated by many years of observation. Cases operated on by me at the Virginia Penitentiary in 1902 show to-day firm, hard testicles, no atrophy or degeneration; cured by sterilization of the debasing habit of masturbation and the resultant insanity. Sterilization does not diminish sexual power or pleasure. The discharge at orgasm is but slightly decreased.

If the subject is cured of masturbation, insanity, or the criminal tendencies, the vas deferens can be reunited, though, of course, this is a more delicate operation than the resection was.

The operation is exceedingly easy to perform. Clean the scrotum, and if the subject is nervous use an injection of a one per cent. solution of cocaine at the selected site, grasp the vas between the thumb and forefinger—it is easily identified by its cord-like feel; fix it with a pair of forceps; cut down on it and pull it through the cut with a tenaculum; strip the membranes and blood-vessels away; ligate above and sever about one-half inch from the end next to the testicle; do not ligate this end. You wish the secretion of the testicle to be emptied around the vessels of the pampiniform plexus and there absorbed. In this way the system receives the tonic effect of the secretion and you avoid also the chances of cystic degeneration. Close the scrotal wound with one cat-gut stitch and seal with collodion. The subject returns to work and suffers little or no inconvenience.

This bill when enacted into law will be a long step in the right direction. It is right, just to all, and humane—and I believe that in the near future, when the great good which its enforcement will make plain in the reduction of our criminals and degenerates, it will be carried further, and provision in our marriage laws be made that when one or both contracting parties suffer from a defect or transmissible disease the male will be sterilized, then let them go on and marry, and by this means there will possibly be a support given some feeble-minded woman that in any other event would become a public charge, or a prostitute, or, more than likely the mother of illegitimate children.

Generally speaking, a feeble-minded man has to find a feeble-minded woman before he can procreate; a feeble-minded woman has no such limitations—under the provisions of the above quoted law, women may be sterilized as well as men—the operation on them being almost as easily done, for it simply consists in ligating the fallopian tubes.

Distinguished criminologists, the world over, are fully agreed that sterilization, asexualization, as it is sometimes called, is demanded in many instances, and is right. A person who is defective, a pervert, degenerate, has no right to impose another defective on the human family. We take their lives from them when they are murderers—hang them, electrocute them—and it is not nearly so severe to take from them their right to procreate. The inconsistible fact is, that many of this class prefer not to procreate, and when they see the good effects of sterilization, voluntarily submit to being sterilized.

Earl Russell, of England, says "I think it admits of little doubt that if the ruling classes in the county, in Parliament, and in the law, were composed entirely of people of adequate medical knowledge, some such remedy as this suggested would soon become the law of the land."

Dr. Bernado says, "Some steps will have to be taken in the near future if we are to protect the nation at large from a large addition of the most enfeebled, vicious, and degenerate type.

Dr. Barr, in his work, "Mental Defectives," says: "Let asexualization be at once legalized, not as a penalty for crime, but a remedial measure preventing crime and tending to future comfort and happiness of the defective; let the practice once become common for young children immediately upon being adjudged defective by competent authority, properly appointed, and the public mind will accept it as an effective means of race preservation. It would come to be regarded, just as quarantine, or vaccination; simple protection against ill."

Quotations such as the above, backed up by an existing law in Indiana since 1907, and

under this law about 500 sterilizations having been done, with unvarying good results, making the recipient of the operation a sunny, bright, natural human being, whereas, before we had to deal with a morose, sullen, suspicious, neurotic and erotic degenerate. Dr. Sharp bears witness to these facts "that many boys have come to me and urged me to fix them as I fixed some friend or associate of theirs; masturbators have urged me to castrate them, so as to help break up the debasing habit. I have refused to castrate, but have sterilized by vasectomy, and cured many and many such cases."

In my experience as surgeon to the Virginia Penitentiary, I have sterilized by vasectomy twelve cases; in every instance, but two, the subjects were insane, consistent masturbators, and in every case masturbation has ceased, the patients have invariably improved mentally and physically, and in two notable cases, one sterilized in 1902 and the other in 1908, both of these cases being exceedingly dangerous homicidal devils—the improvement and cure was little short of marvelous. These two cases were reported at length in a paper read before the National Prison Association at its meeting in Richmond in 1908. Of the two cases referred to above as not having been insane masturbators but sterilized—one was an epileptic masturbator. In his case masturbation has been stopped, and his epileptic spells are much less frequent, he was operated on during September, 1909; the other case very aptly illustrates the class habitual criminal, especially singled out for sterilization by the bill. This young negro, judging from his color, is the son of a negress by some degenerate white man. When he was very young he was sent to the Negro Reformatory for incorrigible boys; the superintendent of this reformatory, a most intelligent and well-informed man, ex-minister from the United States to Liberia, informed me that this boy had a most harmful and debasing effect on the other inmates of the reformatory; he was a past master in sodomy and masturbating. After he became too old to remain at the reformatory he was discharged, and very soon came to the penitentiary for burglary. He at once took the lead in sodomy and kindred deviltries, repeatedly being caught in the act of sodomy, and no punishment, however severe, had the least deterrent effect. He completed his sentence, was discharged, and in less than a year was re-sentenced for burglary again, and given the additional five years for second conviction.

When he returned to serve this new sentence he was even more debased and debasing in his masturbating and sodomy, and I sterilized him by vasectomy about six years ago; he is to-day a strong, well-developed young negro, well behaved, and not a masturbator or sodomist. Cured by sterilization, and better than anything else, when he is discharged at the completion of his sentence, he cannot reproduce in species. I report this case at length because it is typical of the habitual criminal, degenerate, who would come within the purview of this sterilization bill.

Since Indiana has passed the sterilization law, and since the meeting of the National Prison Association in 1908, Utah California and Connecticut have passed similar sterilization laws. Earnest thinkers and workers in New Jersey, Minnesota and Texas, backed by their respective State medical societies are urging the passage of this sterilization act. I believe that every State in the Union will ultimately be aroused, and see the necessity for such a measure as I now advocate, and pass it.

932 *Park Avenue.*

SARCOMA OF THE OVARIES—REPORT OF A CASE.*

By J. E. RAWLS, A. B., M. D., Suffolk, Va.
Surgeon to Lakeview Hospital, etc.

Sarcoma belongs to the stromatogenous variety of ovarian tumors. Compared with other ovarian tumors, sarcoma is a rare affection. Only about five per cent. of all ovarian tumors are sarcomatous, and about fourteen per cent. of the malignant growths, according to Russell. Kelly's clinic showed twenty-eight cases of sarcoma out of 550 ovarian tumors, which is a fraction over five per cent.

Sarcoma is found at all ages, and has been observed in the fœtus by Doran. The greatest number, like fibroids, occur in early adult life, but grow as a rule, more rapidly than fibroids.

Ovarian sarcoma, like sarcomata elsewhere, have rapid growth, speedy degeneration, and

*Read before the Seaboard Medical Association during its session at Norfolk, Va., January, 1910.

metastasis. About half of ovarian tumors in children under five years are sarcomatous.

The size of these tumors varies greatly from a child's fist to a man's head, or may acquire enormous proportions, filling the entire abdominal cavity. Sarcomata of the ovary are globular, or oval, having a smooth and even surface, and are sometimes lobular. Consistency varies according to composition—pure sarcomatous and cysto-sarcomatous growths being much softer than fibro-sarcomatous. Cystic degeneration, as a rule, is found and may involve the greater part of the tumor. It is rich in blood vessels, and hemorrhage quite frequently occurs in these degenerative areas. Like other solid ovarian tumors, they are commonly accompanied with ascites. The cut surface shows a soft, grayish, homogeneous, vascular, brain-like substance.

Sarcomata may undergo changes such as calcareous and fatty degeneration. These tumors are generally attached by pedicles and adhesions to adjacent structures.

About twenty per cent. of the cases, according to statistics, show that both ovaries were previously involved.

The spindle-cell tumor is the most frequent variety of sarcoma found in the adult, while the small round-cell variety almost exclusively characterizes those found in young children. The other varieties of sarcoma are very rare.

Report of Case.—P. J., female; white; age eighteen; single; occupation, domestic; family history negative; personal history also negative. For the past three or four years, has been suffering at times with some general abdominal soreness and tenderness, sufficient to cause her to discard her corset most of the time, and the weight of her clothing around her waist would at times occasion some uncomfortableness, but never suffered sufficiently to disable her from attending to her regular domestic work.

On Wednesday, July 21, 1909, she drove through the country a distance of twenty miles. On her return home she was suffering considerably with general abdominal pain—accentuated chiefly in the region of the umbilicus, and radiating to the right iliac fossa. For the next three days her suffering was sufficient to keep her in bed most of the time. On Sunday, July 25, 1909, her pain, accompanied with fever, was so severe that she was unable to sit up, and on this date she felt a mass in the right side. She did not improve; so on July 27th she sent for her family physician. He found her with fever and considerable abdominal pain and distension. Pain prevented him from making a thorough physical examination; so he delayed until his next visit, when, on examination, he found a large mass in the right iliac region extending from the pelvis up to within one or two inches of a horizontal line through the umbilicus and toward the left near the median line.

By diet and quiet the abdominal pain and distension grew less, but the fever continued. On the morning of August the 7th, 1909, she was put under my care in Lakeview Hospital.

Examination showed she was not very anemic, and was fairly well nourished. Tongue coated and there was abdominal distension. Temperature 103 degrees; pulse 154; respiration 34. The temperature, pulse and respiration were, at this time, exaggerated, as she had been brought through the county a distance of ten miles. Urine negative; some increase of triple phosphates. Said she was weak and complained of pain and soreness in the right iliac region. Physical examination was negative save slight peritoneal fluid, and vaginally and rectally this large mass was felt, which extended also to the left iliac region. The mass was not very sensitive, but firm, and surface was slightly irregular, resembling a fibroid. She gave, however, no fibroid history. According to her statement, the tumor had not enlarged since she discovered it nearly three weeks previously. So the question arose as to whether this tumor was a chronic condition, and that she was suffering with some acute trouble as typhoid fever, rather than the effects of the tumor. On inquiry, found that her sister was just recovering from a six weeks' attack of typhoid fever. She lived on the same farm with her sister, but about a half a mile away, and had visited her several times during her illness; hence thought it wise to delay operation for a time and spend a while in approaching a more definite and thorough diagnosis.

After she had been in the hospital six hours she had epistaxis, and on the third day after her admission to the hospital, she had another attack. During these three days her temperature had ranged from 100 to 102 degree F., pulse 100 to 120, respiration 25 to 30. Ex-

amined blood on the third day after admission for Widal reaction, which was negative. Six days later examined it again and it was still negative. During this period of six days her fever, pulse, respiration and general condition were practically the same as on the first three days. Physical examination at this time showed no appreciable increase in the growth of the tumor, but an increase in abdominal fluid. Having eliminated as far as we could any acute trouble, as typhoid fever, (although she had some prominent symptoms), we decided to operate. Operated on the morning of the twelfth day after admission, which was August 18, 1909.

and extent of these tumors as they were adhered to the parietal peritoneum and adjacent viscera. These tumors were each attached by a pedicle, which was ligated, excised and the masses removed from the abdominal cavity. The general shape of each of these tumors was that of the normal ovary. Surface smooth and even, with areas slightly lobulated. On section of these tumors, they were found to be vascular, homogeneous, gray, and composed of a brain-like substance. Consistency, soft and very friable—so much so that in removing the larger tumor from the abdominal cavity it divided into halves. The larger growth weighed three and one-half pounds, while the weight

Vertical Section of Large Tumor, Weight, 3½ Pounds.

Operation.—Made median incision between umbilicus and symphysis pubis. On opening the peritoneum a considerable amount of serosanguinous fluid escaped and a large mass came into view. Introduced hand into the peritoneal cavity and outlined two tumors, extending, one from each side of the pelvis up into the abdominal cavity. The right tumor was much the larger. Further examination of the tumors showed they were of ovarian origin. With difficulty I was able to get the definite shape of the smaller was one and one-half pounds.

Microscopically these tumors proved to be small round cell sarcomata. The microscopic examination is the only true and positive method of diagnosis.

The parietal peritoneum and adjacent viscera from which adhesions had been broken, occasioned considerable hemorrhage, and here and there were seen metabolic deposits. The hemorrhage was controlled, and the abdominal wound sutured and dressed.

The patient readily recovered from the anesthetic, but never fully recovered from the shock, and the worst came in about ten hours after she left the operating table.

No apology is offered for reporting this doomed case. It is reported for three reasons:

First. Because it is of the rarer type of ovarian tumors.

Second. Because of the unusual typhoid-like symptoms, accompanying these growths.

Third. Because it is desired to impress the extreme importance of thoroughly and systematically examining all patients that consult us as to seemingly the most trivial symptoms, and at once institute the proper treatment; for, as Crile has truly said, it is unfortunate that cachexia and glandular enlargement should be considered symptoms of cancer, for when diagnosis is delayed until these two symptoms are developed, hope for cure by operation is in vain.

Dimensions, One-Third of Original; Weight of Smaller, 1½ Pounds; Weight of Larger, 3½ Pounds.

To me, the high mortality in this class of cases is not a surgical mortality, but a medical. We must remember that it is these early shadowy symptoms, if properly interpreted, that offer the poor victim a hope for life, while, if neglected or overlooked, give untold suffering and ultimate death.

HIGH MEDICAL EDUCATION—AN ARGUMENT FOR ENGLISH PREPARATORY TRAINING ONLY.

By ALLARD MEMMINGER, M. D., Charleston, S. C.
Professor of Chemistry, Hygiene and Urinary Diagnosis, Medical College State of South Carolina, etc.

What is higher education? Leaving out of consideration the advancement that must go on in medical studies and equipment of all first-class medical institutions, irrespective of the literary attainment of their corps of professsors, it is quite difficult to define.

By the best informed in advanced educational circles, it is considered as the modicum of learning attained at a college, whose curriculum comprises the ancient and modern languages, pure mathematics, including astronomy; history, literature and rhetoric; moral philosophy and logic; political economy and ethics, and those branches pertaining more directly to science, including chemistry, physics, geology and mineralogy.

In the university, however, although the same studies are pursued, a more specific study is made of each branch, and, therefore, a more thorough, deep and exhaustive research aimed at. A medical college, then, whose professors have gone through such courses as delineated above, has a right to require that its entrance students shall show some knowledge of the rudiments in each of these branches; but this right at times it would be unwise to exercise.

If, however, the course pursued by the professors was on the lower plane of neither col-

lege nor university, the curriculum of, say, a preparatory school for the college or the university, then the entrance requirement for students at medical colleges should be correspondingly lowered, and be on a plane where good English, good ciphering and a general knowledge of grammar, history, geography, spelling, letter writing and composition is considered of paramount importance, and which, as far as we can judge, after years of practical experience, in sections like ours, is quite sufficient and high enough, and is really higher education when contrasted with the environments.

Æsop's fable tells about the frogs and the King. You will recall they lived in a marshy lake and, although doing well, increasing in numbers, contented and happy, wished for a ruler. So they sent ambassadors to Zeus asking for a King, who, in his wisdom, perceiving their simplicity, gave them a log upon which they could climb and thrive. Indignant, however, at this motionless king, they asked for a real one. So Jupiter, evidently angered at their presumption, sent them a stork, who began not only to rule them, but to eat them up; so again, in their confusion, they appealed to the all-wise head of the gods, but it was too late. Then, said an old Frog, "it is better to have no king, or an idle king, than a cruel king."

So does the present case appeal to the writer, with the Association of American Colleges the stork, the arbitrary autocrat; without whose pharisaical insignia of rank we can thrive.

It is almost as impossible to draw an exact parallel between colleges well endowed and in a populous and wealthy district, and colleges otherwise situated, as, to say, that where wealth and over-populated districts prevail, a more exact standard may be maintained. However, even under such conditions, if the sentiment of honor and honesty of purpose is not uppermost, a grade, whether A, B or C, is only one of name and not of principle.

A college that wishes truly to raise its educational standard in substance and not merely in form, if practically possible, whether in New York, Philadelphia or in Charleston, should surely have its professors willing to undergo the same hardships as those imposed on its entrance students, unless at some time in their lives they underwent the same.

Do New York colleges, or any other medical colleges, classed as A, exact these requirements of their teaching staff? I think not. Wherefore, then, trail after such standards? Wait to consider them when the men upholding them take a step higher, in only regarding a college whose teaching faculty is composed of college-bred men as entitled to class A, and thereby show to the thinking world that they *in fact,* not in words, ask nothing more of entrance requirements for students than they themselves have passed.

That *post hoc* differs very materially from *propter hoc* is just the reason that so many so-called educational reforms are levelled at the student, leaving the teacher unmolested, who, in his place of safety, frequently not possessed of higher education himself, and not comprehending that it refers to him as well as to his students, blates out loud and lustily, *higher education!* higher education!

This, then, as it might at first sight appear, "tony society" of American Medical Colleges, is not quite so exclusive as to its faculties as it is as to its students. Therefore, until it shall have shown an equal, plain, square, clean and honest dealing with them it is not to us, like Caesar's wife, above suspicion, and entitled to a following of the best.

I am fully in sympathy with raising the standard of education in the student body of all colleges, but I am equally so for raising the educational standard of the teaching faculties, which higher education, I take it, means the one can be winnowed out during their years of study; and these very ones that cannot be so dealt with, give us the only true way of judging of the real educational standard and character of any college.

In consequence, then, of this limitation for entrance students, after a little, the poor man is entirely excluded from sending his son to the medical college. Though this, it may be argued, is an advantage, I think it short sighted policy, since in the end it puts the medical profession entirely in the hands and power of the rich class, and eventually in rich centers, the dangers of which are at this moment well exemplified by the miseries some of the big trusts in the commercial world are now causing; and in States like our own, the people in the country, in the end, will have to go without physicians, for the few that would be graduated each year under a rigidly enforced high

standard system would seek fields of remuneration, which are not found among the country poor.

Even now we cannot get trained nurses for such people; and soon they will be without physicians if this system is strictly carried out and all colleges join the same. Although the quart measure is bigger in size, the gill cup is quite as important as an instrument of measure, and if it can hold all that is wanted, it is all that is wanted; but for each we require true, full and honest measure. We do not countenance the plan of simply having a standard which we do not live up to; indeed, may we not say, in which the public is sold a gill, although measured as a quart?

The few students who, after graduation with us, go to New York, and, as is contended, suffer from the fact that they are not on an equal footing with those graduating in New York, although they know just as much, redounds to the honor of our institution, and shows that even in the beginning, the high standard, as they call it, is either not being enforced or else our standard, as it is, makes as good physicians. Though it is unfortunate for one if he wishes to get ahead in New York that this technical obstruction should be in his way, it is far more to the point and important to all, that the people in South Carolina should not suffer.

Let us then, as they colloquially say, "get up against the real thing," the necessity or not, of joining this American Medical Association of Colleges. The advantages are, I see, *first,* that we appear (although I have tried elsewhere to show falsely) to be on a higher grade; and, *secondly,* any student graduating under such auspices has in New York, Philadelphia and Chicago a better stand, which, too, I shall grant, but ask, are these sufficient reasons for making the change? Let us see.

The office, I take it, of all good and high standing medical colleges, as with all really high toned men, is to live up to the standard assumed. Granting this, let us see how it affects all concerned.

First, the standard affects the teaching faculty; secondly, the standard affects the students; thirdly, the standard affects the college and through it the public.

The most important good to be attained is that which really is to affect the public. A college, like anything else, requires money to run it properly, and keep it in the *true* front; consequently, if the standard be so high as to exclude those who are only able to go to school and not to college, a great diminution in the student body must occur; and if the college is not well endowed, it will be impossible to keep up its standard of efficiency, or to retain for any length of time, men highly educated and willing to devote most of their time to the college, and without which devotion of time no college can be kept in the first rank.

The News and Courier, March 2, 1910, has an article captioned "Too Many Doctors," in which Dr. Henry S. Pritchett, of New York, President of the Carnegie Foundation for the Advancement of Teaching, is said to have asserted before the Council of Medical Education of the American Medical Association:

"We have in this country about 150 medical schools. Each of our schools in the last ten years has educated so many physicians and surgeons that the over-production has become enormous. We have twice as many physicians per one hundred thousand as England; four times as many as France, and five times as many as Germany."

Now, what of it, even if all of this is so? Why should not the United States have many more, *per capita,* when you take into consideration the area of square miles covered? Should not square miles be taken into the estimate as well? A population scattered over a great area requires a greater number of physicians to attend to their wants—and this is just the case in America, and not the case in densely populated Europe.

Therefore, any computation based solely on the population of a country and not on the number of persons per square mile of that country, is entirely misleading and far short of the truth.

We are, therefore, of the opinion that even if America supports one physician to every 568 persons, and Europe only one to every 1,500, the differences in the manner in which the people in the two countries are scattered, allow the physicians attending in America less patients to each man, and, therefore, more physicians, proportionately, for the country.

This is an age of consolidations and trusts, I know, but unless you are able to have some power of control in the same, be careful; for

with the dishonest it means simply deception, and a filling of their benches from the colleges which have no elasticity in their methods, whereas, with the honest and close adherents to principle it will mean more work, less pay, and more time given by each professor to his students, which item even now we really think, should be a condition required with our standard.

Elasticity in the methods of other colleges, in or outside of this college trust, should not influence any to like doing. Such methods will, in the end, overpower them; therefore, it is unwise just at this time to enter such a trust.

We should then go on with our standard of requirements for entrance students as it is, which with such environments as we have, in our opinion, is high enough; let us live more strictly up to it, each professor giving more time to the college, gradually improving it thereby; and not by a violent jump at the matriculate, jeopardize the usefulness of an institution, which, with true high tone, will continue, as heretofore, to send out men competent to do their medical and surgical work, even if they, like many other physicians and surgeons of large practice in Charleston to-day, have never read, and in some instances never heard, of Caesar's Commentaries, the Odes of Horace, Xenophon's Anabasis of Cyrus, and Memorabilia of Socrates; Racine's Britannicus, or Andromaque, and Moliere's Tartuffe.

Let each one ask such questions as these: How often have I in my locality and every-day walk in life met with physicians of such rounded educational attainment, as a familiarity with the authors just enumerated would indicate? How often have I met with men of good English education, as taught in schools of first grade? How often have I met with those who have attended only an ordinary village or country school? Then I think we may be able to estimate what our loss in students will measure up to, if we tie to a standard, which, though quite right for a professor (which its Latin origin, professorius, implies), is not essential for the ordinary practitioner, and should not receive support.

Do not be influenced, either, even by the statement, that a majority of the medical colleges belong to this Association already, and, therefore, ours not being a member, will be looked upon not with favor; but ask the question, in answer thereto, does the large number of students now enrolled justify such an assumption? Remember, also, an equally important fact, that our college is not fed by this Association, which really aims at centralization, but by the State; and just as soon as the State wakes up to the reality that her people in the country districts would, by this centralization, be left without physicians, she will more than ever see the necessity and wisdom of sending her sons to some institution which holds these views, and which, mark you, judged by the practical standard of efficiency of its graduates, compares well with any college.

In conclusion, then, I hope I do not exceed the bounds of propriety, when I suggest to all interested in higher education, to first fill their college faculties belonging to this so-called high-class Association of Colleges, with college-bred men only, or else subject those who occupy professorial places without such attainment, to the same test as entrance students; but do not call colleges which, all over the land, have among their teaching faculties men less educated technically than many of their students in "class A." It is misleading and wrong, and in the end, like sin, "will find you out."

34 *Montagne Street.*

SECONDARY ANEMIA FOLLOWING ACUTE INTESTINAL INDIGESTION.*

By JOHN E. WALSH, M. D., Washington, D. C.

I present to your notice a report of what has been to me a most interesting case. It may not be so novel to some of you; it is the first that has come to my knowledge, and I am anxious to hear opinions regarding it. It is a case of secondary anemia following an attack of acute intestinal indigestion with the concomitant symptoms of such an alarming nature that I think the case unique.

H. C. L., white; male; age about 52; occupation, clerical, but not of a sedentary character, his duties requiring a considerable amount of walking about in the open air. His past history is negative as to any condition that would affect his present health. He never had any venereal disease, and was perfectly well up to the time of this attack, November 25, 1909. Not feeling particularly well refrained from over-eating—in fact was very abstemious. That

*Read at a meeting of the Medical and Surgical Society of the District of Columbia, Feb. 3, 1910.

evening, however, about 7 o'clock, he ate a piece of mince pie, and about 12 o'clock sent for me.

When first seen he was having most intense intestinal pain. His pulse was small and rapid; his face covered with profuse perspiration, and his abdomen enormously distended, presenting a typical picture of acute intestinal indigestion.

I first emptied the bowels by means of the long rectal tube, and then gave him a half grain of morphia sulphate hypodermically. In about an hour he fell asleep; in the morning he awoke feeling fairly comfortable. During the day, November 26th, he took repeated doses of a saturated solution of sulphate of magnesia, which moved his bowels copiously several times. In the evening he felt so well that he attended the meeting of a society.

About 1 o'clock A. M., I was again called, and found him in about the same condition as on the preceding night. Inasmuch as his intestinal tract seemed to have been pretty thoroughly emptied during the day by means of the salts, it was thought unnecessary to give him anything more for that purpose. He was given hypodermically half a grain of morphia; no effect being produced, in about an hour and a half it was repeated. This quieted him somewhat, but did not entirely relieve the pain.

During the day, the 27th, he still suffered greatly, and an attempt was made to move his bowels by means of the high tube, and later with salts. Notwithstanding his suffering, morphia, on account of its constipating effects, was withheld. Toward night bromide of soda, grains 30, and chloral hydrate, grains 15, were given at two-hour intervals. The pain was somewhat relieved, but no sleep obtained. During the night he was wildly delirious. His temperature on the morning of the 28th was 98 degrees, and in the evening, 100 degrees; pulse ranging from 80 to 96; salts and high injections were used on this day without results. A dose of castor oil was also given, the greater part of which he vomited. This was the only time he vomited during the attack. During the day he had a peculiar delirium, such as we oftentimes see in typhoid fever. He seemed to understand and talk intelligently when he was not groaning or crying with pain, but later had no recollection of anything that was said or done. In fact, after his recovery he said he had no knowledge of anything that happened from the night he went to the meeting until he came to himself in the hospital about three weeks later. On the 29th of November I gave him a drop of croton oil which moved him freely. The bowels were kept acting with salts, and during the next few days he had five or six movements a day. His temperature while at home ran about the same course as is shown on the chart which was kept after his removal to the hospital. His pain still continued; his intestines were distended in spite of the bowels moving; application of turpentine stupes, and the administration of betanapthol, was sleepless and unable to lie except on his back. For the insomnia there were administered at different times chloral hydrate, 15 grains, with sodium bromide 30 grains; repeated several times at intervals of two hours; trional, 10 grains and veronal 10 grains, but without result.

On December 2d he was given eight grains of calomel, which produced free purgation; on the 3d, and on the 4th he passed in the stools undigested food, he had eaten November 25th, raisins from the mince pie and corn. This was nine days after they were ingested, and had remained in the intestinal tract notwithstanding the many movements which he had had. After this he improved slightly; his pain was less, and his general appearance seemed better, but he got no sleep, night or day.

On Decemeber 6th he seemed particularly bright; his pain was almost entirely gone, the abdomen nearly normal in size, and he was stronger, talked rationally and took an interest in things generally.

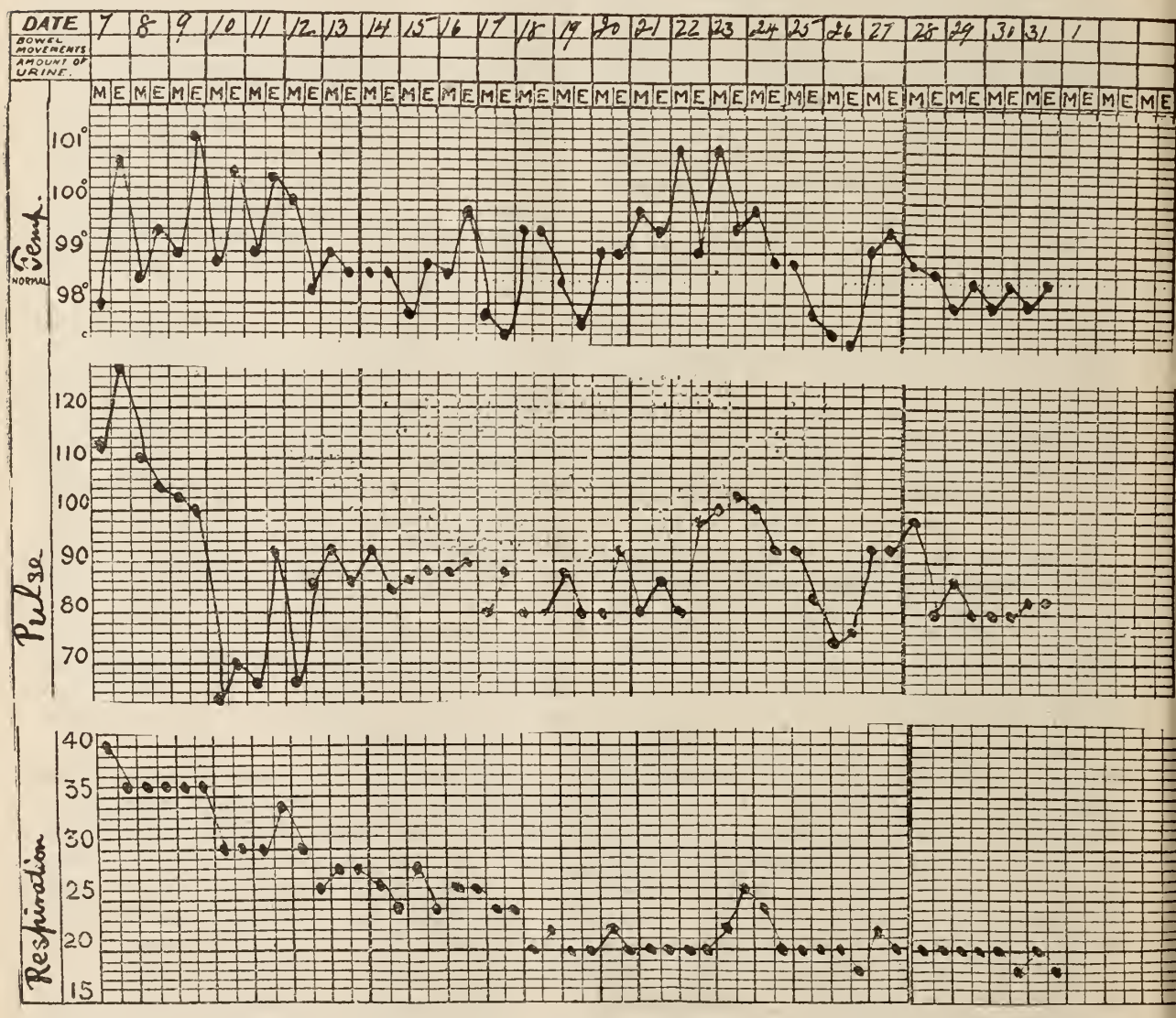
During the preceding week I had made two examinations of his urine, but, except for a slight trace of albumen, nothing abnormal was found. A twenty-four hours' specimen, taken on December 6th, examined on the 7th, contained a slight trace of albumen, granular and hyaline casts, but the output of urea for the twenty-four hours was forty-six grams.

On the morning of December 7th I was called in a hurry, the message stating that Mr. H. C. L. was having a convulsion. Arriving at the house in about ten or fifteen minutes, he was found not in a convulsion, but in a state of collapse. His pulse was 140, his temperature sub-normal, his face pale, and his whole body covered with a profuse sweat. He was

given cardiac stimulants, and moved to the hospital, where naturally he was confined to his bed and treated symptomatically.

I will not weary you with the daily record of his temperature, pulse, etc., but present the chart for inspection. You will notice the erratic course of both the temperature and

During the early part of his illness a diagnosis of toxemia due to the undigested food was made, but about this time I began to have grave doubts as to my diagnosis on account of the severity of the symptoms, and looked again for some other pathological change which might account for his condition. Typhoid was one



pulse, etc., especially the latter. At the time he was admitted the pulse rate was 110, and temperature 98 degrees; in the evening the pulse had increased to 128 and the temperature to 100.8 degrees. On December 8th and 9th the pulse dropped to 100, and on the 10th to 62, a difference of twenty-eight beats.

of the possibilities thought of, and acute nephritis after the urinary analysis made on December 7th. His lungs showed no involvement at this time, although later there was some hypostatic pneumonia.

Previous to his removal to the hospital, the patient did not present a very anemic appear-

ance; while his color was not good, it was not alarming. After his admission, however, the anemic condition was very pronounced, face pale, nails white, and the conjunctivæ bloodless. An examination of his blood on December 8th showed a leucocytosis of 25,000.

About this time Dr. Acker saw ehe case, and he concurred in the diagnosis. The drug treatment consisted of nitro-glycerine 1-100 of a grain, strychnine sulphate 1-60 of grain every four hours, to which was added, December 10th, a solution of peptonated iron and manganese, given in small doses at first on account of the presence of fever, and later in one-dram doses. To keep his bowels open soapsuds clysters were used. He was kept on liquid diet until December 12th, when zweibach was added, and on the 13th graham crackers and bone marrow. Later he was given spinach, lamb chops, broiled steak, etc., as his condition improved.

Blood examinations showed as follows:

December 11—Red cells, 2,000,000; white, 19,000.

December 16—Red cells, 2,400,000; white, 14,000.

December 22—Red cells, 2,900,000, white, 16,000.

December 26—Red cells, 4,000,000; white, 10,000.

The hæmoglobin was never less than 75 per cent.

His urine was examined on December 9th, when during the preceding twenty-four hours 104 ounces were passed. Its specific gravity was 1018; no albumen, no casts; urea 41 grams. On the 11th, 41 ounces voided; specific gravity 1022, no albumen, no casts, urea 28 grams. On December 21st, 24 ounces voided; specific gravity 1017, a trace of albumen, a few hyaline casts, urea 10.2 grams. December 29th, 16 ounces voided; specific gravity 1020, no albumen, no casts.

The action of his kidneys was as erratic as was his pulse. The amount of urine voided varied from 104 to 16 ounces in the twenty-four hours, getting much smaller in quantity toward the end of his stay in the hospital. The daily amounts voided during the last week were as follows: December 22d, 48 ounces; December 23d, 17 ounces; December 24th, 28 ounces; December 25th, 28 ounces; December 26th, 26 ounces; December 27th, 17 ounces; December 28th, 17 ounces; December 29th, 16 ounces. During the earlier weeks the amount varied from 60 to 104 ounces. His general condition, however, continued to improve, and on January 1, 1910, he left the hospital, and after about ten days was able to return to his employment.

I have examined him recently, and except for a little weakness, he is perfectly well. During his attack he lost fifty pounds in weight.

The conditions accompanying this case, which seem to be remarkable were:

1. The long continued pain in spite of the free purgation and morphia given.
2. The presence of undigested food in the stools eight or nine days after ingestion, notwithstanding the bowels had moved so frequently.
3. The uncontrollable insomnia.
4. The great prostration and change in the blood.
5. The marked toxic effect of the undigested food on his heart and temperature.

We often see in children the effects of intestinal toxemia, but there it is evidenced by a rise in temperature and a general drowsy or stupid condition which usually disappears in a few days after the purgation. I had never seen previously in an adult such great disturbance, nor do the text-books say anything about such a result, but I have wondered if the condition is not more common, and if some of the cases of typhoid which are diagnosed without blood tests are not due to auto-infection. In investigating the cause of typhoid in the District of Columbia, many cases have been visited which give a similar history, to the case above reported where the temperature never went above 101 degrees, convalescence in from ten days to three weeks.

202 *East Capitol Street.*

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF DISTRICT OF COLUMBIA.

Tumor of Bladder.

Reported by FRANCIS E. HARRINGTON, M. D.

Dr. Hagner reported the case of a white man, sixty-eight years old. Sick three weeks. Had never presented any urinary symptoms, yet had constantly increasing pain on urination. No enlarged prostate glands. Cystoscopic exami-

nation showed sub-mucous hemorrhage from front and side walls of the bladder. Tumor over prostate was size of a base-ball. Suprapubic cystotomy performed. Tumor removed. He believed the entire bladder to be infiltrated with sarcomatous tissue. Report of examination of specimen not received. In these cases advises entire removal of bladder.

Dr. Carr asked why he did not advise planting the ureter into the colon. He understands the danger of infection, but does not believe it is any greater than from an opening through the skin.

Dr. Hagner said the danger is about equal, but by the insertion of a tube directly into the pelvis of the kidney, no infection seems to result. He said that Dr. Coffee, of Portland, Oregon, has a method of inserting ureter into the intestine, and thus obtains a valve action.

Dr. McKinon asked if the use of Coley's serum offered any hope of cure in such cases.

Dr. Copeland asked if a microscopic observation would prove anything.

Dr. Hagner replied that it was doubtful, but that there were some enlarged glands present.

DISCUSSION OF DR. WALSH'S PAPER.

Dr. Copeland said that little was known about the pathology of the blood. A number of cases of pernicious anemia are really due to intestinal infection. The presence of abnormal intestinal flora in the blood is frequently associated with anemia. The B colon is the cause of anemia, and this condition has been caused by injection of the colon bacillus into the blood. Abnormal blood cells are always present when the count falls below 2,500,000. An anemia has been produced that could not be differentiated from pernicious anemia.

Dr. J. D. Morgan said that the case resembled ptomain poisoning. Usually a subnormal temperature is present, but a differential count might have been used to make the diagnosis clear.

Dr. Carr questions the diagnosis because of too much and too prolonged pain, even after movement of the bowels. The evident cause must have been some obstruction or paralysis of the intestine. The case resembled acute pancreatitis, but a diagnosis in these cases, as a rule, is made post mortem. Chronic pancreatitis is frequently caused by obstruction of the common duct, forcing bile into the pancreas. Acute pancreatitis causes death early, and this condition is often found in operating for stone in the common duct.

Dr. Parker said that pernicious anemia is no longer believed to be a primary condition. Dr. Bunting's method of injection under the skin causes a secondary anemia. A direct intervenous injection produces a primary anemia, and the condition varies with the quantity of the injection.

Dr. Harrington stated that he had under his care a patient whose symptoms resemble those of Dr. Walsh's case in a much milder form, and that he had found a paralysis of the intestinal tract to such an extent that food had been passed several days after ingestion, although the bowels were kept open.

Dr. Carr said that the intestines become chronically contracted.

Dr. Walsh, in closing, stated that pain was never over the region of the pancreas—mostly below the umbilicus. The relapse was due to the blood condition. Patient improved after the bowels were thoroughly emptied.

Correspondence.

Dentists Must Be Graduates in Medicine.

Editor Virginia Medical Semi-Monthly:

The dental specialists have had a law enacted by the last Legislature which other specialists would do well to imitate. All dentists hereafter must first pass the Medical Examining Board, and then pass the Dental Board to show their proficiency in this specialty. Of course, the effect of this will be to require of all dental surgeons the M. D. degree, and this is as it should be.

Would it not be well for the medical law to be so amended as to require special examinations of those who propose to practice surgery? What does the ordinary graduate in medicine know of surgery? Nearly every physician attempts surgery from time to time, and many bad blunders are made. So with the eye and ear specialist. What guarantee has the public that these men are proficient when they begin? Our schools should be "elective." At the end of the second year each student should be required to indicate the branch he wishes to follow, and his education should be directed along those lines.

E. P. Beadles, M. D.

Danville, Va., March 18, 1910.

Book Notices.

Text-Book of the Practice of Medicine. By JAMES M. ANDERS, M. D., Ph. D., LL. D., Professor of Medicine and of Clinical Medicine, Medico-Chirurgical College, etc., Philadelphia. Illustrated. Ninth Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Co. 1909. 8vo. 1,326 pages. Cloth, $5.50 net; Half Morocco, $7 net.

The marked popularity of this text-book is greatly due to the practical manner in which the author deals with subjects—omitting, in great part, theoretical discussions to give place to what seem to be well founded facts. Many conditions not mentioned in former editions are described in this. We are a little surprised that the common name "hook-worm disease" is not mentioned in the chapter on "ankylostomiasis," nor in the index. The half-page section on pellagra is also unsatisfactory—both as to description and treatment. But such are among the faults of the book, and should not detract materially from the true merits of the work as a text-book for students, and reference book for practitioners. For, as to the general run of diseases, as every day met with, the descriptions are good, the points of diagnosis clearly brought out, and the therapeutic advice is well founded on experience and observation. It is a standard authority on diseases included in the Practice of Medicine.

Text-Book on the Practice of Gynecology. By WILLIAM EASTERLY ASHTON, M. D., LL. D., Professor of Gynecology, Medico-Chirurgical College, Philadelphia, etc. With 1,058 New Line Drawings Illustrating the Text. Fourth Edition, Revised and Enlarged. Philadelphia and London: W. B. Saunders Co. 1909. 8vo. 1,099 pages. Cloth, $6.50 net; Half Morocco, $8.00 net.

It speaks well for a book, in this day of ever-increasing authors and good books, that a fourth edition of this text-book should be called for. This demand is evidently due to the author's intent to be as conservative as possible as to rushing to radical operations, and to the care he gives to the details of such operations as may be demanded. A number of chapters of former editions have beeen entirely re-written from the practical standpoint of the every-day practitioner; and advances have been noted, wherever made, in all sections of the book. So that, as it is now issued, it is a truly practitioners' text-book.

Examination of the Urine. By G. A. DE SANTOS SAAE, M. D., Instructor in Genito-Urinary Surgery, New York Post Graduate Medical School and Hospital, etc. Second Edition, Revised. With Text Illustrations and Colored Plates, a Number of Them Original. Philadelphia and London: W. B. Saunders Co. 1909. 12mo. 448 pages. Cloth, $1.75 net.

This "manual for students and practitioners" is, to all intents and purposes, a new, up-to-date book of great practical value. What has been found useless or impracticable in the former edition has been eliminated, and the new matter is such as has been tested and proven valuable in urinalyses. It is an excellent book for the *practitioner,* as well as text-book for the student. The findings in the urinalyses point to the conditions which cause the urinary changes.

Surgery—Its Principles and Practice by Various Authors. Edited by WILLIAM WILLIAMS KEEN, M. D., LL. D., Emeritus Professor Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia; and JOHN CHALMERS DA COSTA, M. D., Professor of Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Vol. V. With 550 Illustrations—45 of them in Colors. Philadelphia and London: W. B. Saunders Co. 1909. 8vo. 1,274 pages. Cloth, $7.00 net; Half Morocco, $8.00 net.

When the first volume of this system of surgery was issued, it was thought that it would be completed in five volumes of about 800 pages each. Now, that the fifth and last volume is issued, it is found that the whole has about 5,500 pages, or an average of about 1,100 pages per volume, without increase of the advertised price in the beginning. There have been sixty-six distinguished authors for the five volumes—each selected with special reference to his recognized ability as to subjects assigned. There are seventeen chapters in this Volume V, covering surgery of the vascular system, of the female genito-urinary organs, of accidents, of parathyroid bodies, of the fifth and eighth intra-cranial nerves, of the infectious diseases, etc., besides chapters on surgical technic, anesthesia and anesthetics, uses of X-ray, ligation of arteries, operations on bones and joints, etc. He who follows the teachings of this volume in his practice cannot go astray, so far as the weight of authority of the present day is concerned. Each of the volumes is finely issued, and the illustrations are abundant and well chosen.

Spondylotherapy. By ALBERT ABRAMS, A. M., M. D., F. R. M. S., Consulting Physician to Mount Zion and French Hospitals, San Francisco, Cal., etc. Illustrated. The Philopolis Press, San Francisco, Cal. 1910. 8vo. 400 pages. Gilt Top. Cloth, $3.50.

This is a work on "spinal concussion and the application of other methods to the spine in the treatment of disease." The methods are not advocated as "a king cure all"; but, with proper limitations, it has long been known that such things as massage of the spinal region has a soothing effect in many cases. Our fathers knew that cold applied to the back of the neck very materially aided in arresting nose-bleed, and that hot applications to the small of the back oftentimes hastened menstruation. In this day, these things are too much overlooked by specialists. The doctrine of spondylotherapy is that concussion, or massage of sensory peripheral nerve terminations produce impressions which are conducted, communicated, or reflected by aid of the nervous system; such impressions react on the viscera, and the manifestation of the reaction may be utilized in a diagnostic and therapeutic direction. In this day of public popularity of "osteopathy," "chiropractice," etc., it is well for every practitioner to read this book on "spondylotherapy," written after much study by a reputable physician who has given years of study to the subject, and brings forth facts which the physician can easily carry into practice, and do much to expose the extreme views of fakirs and charlatans.

International Clinics. Volume IV. Nineteenth Series. 1909. Edited by W. L. LONGCOPE, M. D. Philadelphia and London: J. B. Lippincott Co. 1909. 8vo. 312 pages. Cloth.

This last volume for 1909 of a "quarterly of illustrated clinical lectures, and especially prepared original articles," is an unusually attractive and valuable one. Each of the articles under the sections of Treatment, Medicine and Surgery, are particularly striking and valuable. This volume contains the general index for the four 1909 volumes.

Treasures of Truth. By Dr. GEORGE F. BUTLER. S. DeWitt Clough, Ravenswood, Chicago. 12mo. 82 pages. Art board cover. 75 cents; Purple Leather, $1.00.

This book has neither contents nor index. It consists of a series of well written chapters —as much for the laity as doctors—on trite subjects, such as "how to live," "some thoughts on work," "the successful life," "worry and trouble, and how to overcome them," etc. If the advice given were followed, good would result.

Specific Diagnosis and Specific Medication. By JOHN WILLIAM FYFE, M. D., Formerly Professor of Specific Medication, Eclectic Medical College, City of New York, etc. The Scudder Brothers Co., Cincinnati, O. 1909. 8vo. 782 pages. Cloth $5.00; Law Sheep, $6.00.

This is an entirely new work based on the writings of the late Dr. John M. Scudder, with extensive extracts from other leading eclectic authors. A little less than one-half of the book is given to "specific diagnosis," based, for the most part, on what are regarded as specific signs and symptoms of disease. This part contains undoubtedly many facts which are helpful to the practitioner of any school of medicine as pointing to the classification of the disease under consideration. The remainder of the book is given to "specific medication"—reviewing remedies used in the Eclectic School, according to their alphabetical arrangement. Specific uses are assigned to each remedy. Nothing is said of electrical forms of treatment, of radiography, etc. The remedies described are not distinctly classified, as alteratives, antiseptics, etc. However, many valuable suggestions in diagnosis for daily practice are given. The book is nicely issued, well indexed, etc.

Contribution to the Comparative Anatomy of the Prostate Gland. By C. W. G. ROHRER, B. Sc., M. D., M. A., Associate Professor of Pathology, etc., College Physicians and Surgeons, Baltimore, etc. 12mo. 156 pages.

This is a curious book, but one which, after beginning to read, one wants to read through. It is a "thesis for the doctorate of philosophy in biology at the Illinois Wesleyan University, 1909," in which the prostate gland is traced in its development from the most obscure formation in the lower order of animal life through different progressive stages until its perfection in the man. Another very interesting feature of the book consists in the biographical sketch of the author, written by his wife. No price seems to be attached to the book.

Editorial.

"Nervousness" and Abdominal Operations.

Surgeons have told us how persistent are the adhesions which sometimes, after pelvic operations, mat the intestines together or to the abdominal wall, or to the stump after removal of the appendages. Separation of these adhesions is apparently futile; for by no mechanical or chemical means can their reformation be prevented. Indeed, it is the consensus of surgeons that each operation merely renders them more extensive; and this in spite of the relief which many patients experience for a time at least, according to their own story.

It is just here that the fallacy lies; for the same relief is confessed to after various electrical treatments. But this, too, is evanescent; and it is very generally believed to be inspired by the patient's own optimism and to give no real physical benefit. The apparent improvement is purely subjective, and is produced by suggestion as a result of the electricity or the surgical operation, as the case may be.

To illustrate the power of the mind in such conditions, the case of Harriet Martineau has often been cited. It will be recollected that she firmly believed herself to have been cured of a uterine affection by mesmerism. After her death, however, the disease was found still present. Her case illustrates, too, what is not generally appreciated—viz: that clear-mindedness and depth of information in general matters by no means excludes extreme credulity where one's own body or mind is concerned. We see this daily among men of affairs and society women in America.

A most striking case of this kind has recently been reported in this country. A patient who had become mentally unsound after measles was gradually restored to apparent health through the quiet and good food given in Dowie's sanitarium, and by the prayers and exhortations of an elder who daily visited her. The mother of this girl was so strong a believer in Dowieism that she insisted for years upon affirming her own perfect state of health, maintaining her optimism with the Zionistic literature, while everyone saw that she was failing. Eventually her friends called in a doctor; but the patient refused all treatment except diet. She died a week later, and on *post-mortem* examination, every vital organ was found in a sclerotic state, the stomach being merely a fibrous bag, so atrophied was the gastric mucosa; the cystic duct was blocked by a gall-stone, and others filled the gall-bladder; the liver was sclerosed; the spleen was sclerotic; there were calcareous plaques in the aorta, sclerosis of the valves; interstitial nephritis was present; and the uterus was almost replaced by a mass of fibroid tumors, sub-mucous, intramural and sub-peritoneal, one being as large as a man's fist. It was impossible that this condition could not have caused great physical suffering for a long period; but it had all been ignored deliberately by faith.

Compared with this woman's sufferings, those of pelvic adhesion are infinitesimal; and if one woman can school herself to withstand this degree of physical suffering, it is very evident that with a little training, much milder sufferings might be well enough borne by a great many women in whom repeated surgical interference only exaggerates them. Of course, the giving of this power needs a certain technique on the physician's part; mere affirmations as encouragement are unavailing.

Neurologists know that, by the method of substitution and diversion, they can make comfortable a large number of patients whose primary reason for consulting them is pain, by which is really meant discomfort, in many cases. They merely teach the patient how to suppress the consciousness of discomfort; they do not always actually cure the physical conditions at the root of it. We are not here, of course, speaking of either the suggested pain of hysteria or the assumed pains of the seeker for sympathy; these are even more easily removed. We are speaking of the cenesthopathic type of sensations, which cannot be removed, but can be neglected, as is clearly shown by neurological experience with patients who have run the gamut of the gynecological surgeon.

Is it not then evident that psychotherapeusis had much better be essayed before the operation than after operation? W.

Virginia's Insane and Epileptics.

It is a cause of pride and gratification that there are no insane in any of the jails and almshouses of Virginia. All who are committed and apply for admission are promptly received in one or other of the State hospitals.

Few other States have such an excellent record. The laws of the State forbid the incarceration of an insane person in jail or other place of detention, except for a very few days pending the necessary steps to transfer him to a hospital. In no State is the process of commitment simpler or more in keeping with the modern idea that an insane person is a brain sick individual. Upon a certificate of two reputable physicians, based upon personal examination, and sworn statements of witnesses, a justice or judge may commit. There are no pay patients allowed in any of the hospitals, all legally committed insane persons who apply being cared for in the public institutions without personal expense.

The institutions are most economically administered, and as far as is possible with the appropriations granted by the Legislature, the inmates are given modern care, nursing and medical treatment. But, unfortunately, all the hospitals are so crowded and the means so inadequate, that it is impossible to accomplish everything that is demanded by the highest and most approved standards. It is a notable fact that mechanical restraints, such as straightjackets, camisoles, muffs, wristlets, and the like, are not used in any hospital in the State; nor is solitary confinement of a patient permitted. The greatest possible personal liberty is the universal practice in these institutions.

Although the boards of directors and the superintendents recommended and urged additional accommodations and sundry improvements at the several hospitals, the Legislature did not make the necessary appropriations for these purposes.

Beginning at the Central Hospital at Petersburg, about five years ago, separate provision has been made at each of the institutions for the isolation of the tubercular cases, which is a distinct advance, and also the farm colony system of care has been adopted at two or three of the hospitals. This latter is a modern plan which has proven a most economical and efficient one in dealing with the chronic, harmless patients.

One of the most pronounced steps forward in late years is embodied in a bill prepared by Dr. William F. Drewry, superintendent of the Central Hospital, and passed by the recent Legislature, which provides for separate buildings for the criminal insane. One of these buildings is to be erected at the Southwestern and one at the Central Hospital. Another excellent feature in the new law is one which is at least a step towards reform in expert testimony and the preclusion of springing the insanity plea, by providing that, if prior to the trial of any person under complaint or indictment for any crime, either the court or the attorney for the Commonwealth has reason to believe that such person is in such doubtful mental condition that he should be placed under the observation of alienists, the said court may commit such person to the department for the criminal insane, under such limitations as the court may order, pending the determination of his mental condition, etc. The judge is also given authority to appoint one or more experts in insanity, or other qualified physicians, to examine the defendant and make such investigation of the case as may seem necessary, before such commitment is ordered. The compensation of such experts is to be fixed by the court and paid as in the case of other court expenses. The bill furthermore safeguards the discharge of the criminal insane by providing that when any person, charged with, or indicted for, any offence which may be punishable by death, has been adjudged insane both at the time of the offence and at the time set for trial, shall be committed to the department for the criminal insane. Such person shall not be released therefrom until three of the hospital superintendents, after a thorough examination, concur in the opinion that such person has been absolutely restored to sanity and may be discharged without danger to others; and, furthermore provided, that such discharge cannot be given without the consent and approval of the Board of Directors.

The epileptic has at last received something like a fair consideration at the hands of the Legislature. The colony near Lynchburg is to be speedily established and put on the same basis as the other State hospitals—that is, it will be a distinct and separate institution, with its own corps of officers, and used exclusively for the care and treatment of epileptics whose minds are affected. It will no longer be a branch of the Western Hospital. As soon as room is provided the epileptics in the existing hospitals for the white insane will be transferred to the colony. Over one hundred thousand dollars has been appropriated for the es-

tablishment of the colony and its maintenance for the next two years. The Legislature is to be commended for this humane and progressive step. We subscribe to the view expressed in a recent article in this journal, written by Dr. William F. Drewry, who was the pioneer and has been for sixteen years the leading spirit in the move for a State colony for epileptics. He says: "Every possible effort should be made to get the next Legislature to pass a bill providing for an enlargement of the usefulness of the colony by throwing its doors open to all white epileptics of the State, sane and insane, who may need or desire care and treatment, education and training under the best possible conditions. The farm colony system is not only the most economic system of public care and treatment of epilepties yet devised, but furnishes the most satisfactory and promising results and opens up rare opportunities for more exact and broader scientific study of the causes, the prevention, the nature and pathology of the affection."

Preparation for Medical College.

There is so much of good, hard, common sense in the paper by Dr. Memminger received early in March that we feel constrained to invite the attention of doctors to it. If it but serves to check extremists on the subject of higher *preparatory* education for entrance into medical colleges, it will do much good. Twenty years or so ago, there was undoubtedly cause to advocate advanced preparatory education of those proposing to begin the study of medicine—requirements equal to those called for by Dr. Memminger; but such requirements have now been generally met by all medical colleges. It depends now solely upon these colleges to see that their teachings are such as to graduate good, honest practitioners in medicine, surgery, etc.

If one takes the trouble to count up the able *practitioners* of his acquaintance in almost any community of eminent surgeons, physicians, specialists, etc., he will soon become impressed by the fact that, for the most part, few of them indeed met the full requirements of the demands of "so-called" higher education for matriculation—as now advocated by some—such parties, by close attention, and hard study to make themselves truly useful and even eminent in their chosen field have carved their ways into positions of recognition and authority.

We recognize the benefits of the additions and improvements in the *medical* curricula of colleges in the last decade or so—such as radiography, bacteriology, chemical and microscopical analyses, etc.; but these belong to the courses in the medical colleges themselves, and are not dependent on "so-called" higher education of the student proposing to study medicine.

This is a day, in great part, for specialists. There are few graduates of any medical school who are willing to go directly into any of these specialties without first taking a practical course under some recognized authority, or at a polyclinic or post-graduate institution.

There is danger in recklessly rushing into medical "trusts," as also other "trusts." The controlling voice is usually intended to crush out the smaller corporations—however worthy the latter may be, or whatever good, conscientious work they may be doing.

To Prevent Procreation by Confirmed Criminals, Idiots, Imbeciles and Rapists

Was the title of Senate Bill No. 298, which failed of passage before the recent session of the Virginia Legislature. The bill was passed by the Senate, and was favorably reported by the House Committee, but defeated on the floor of the House after a close fight, much blind sentiment apparently figuring in the debate.

The corrective measure proposed seemingly being somewhat radical and unusual to the lay mind, it has evidently been hard for many to disassociate the idea that sterilization in the criminal was done for other purpose than that of punishment; consequently, with strong preiudices to overcome, such bill must await a better understanding of its true object, when, perforce, sentiment will give way to reason, and the prevention of procreation in selected cases will be demanded by law.

In this connection, we wish to call especial attention to the article in this issue by the "father of the bill" in this State, Dr. Charles V. Carrington, surgeon to the Virginia Penitentiary. The facts and figures he mentions in this paper surely must have weight in convincing the unbiased individual that the subject has much to commend it, and the favorable experiences of other States, when better known,

will eventually have its effect "in spreading the gospel around."

Lynchburg (Va.) Medical Society.

The Secretary of this society, Dr. V. V. Anderson, deserves special credit for popularizing the organization with both the profession and people of his community. This society has adopted a system of "health talks," which attract good audiences of citizens, to whom "the talks" are instructive. On April 1st, Dr. Barksdale, President of the local Board of Health, discussed "Smallpox and the Means of Its Prevention," while Dr. John Carroll spoke on "Infant Feeding and Its Relation to Infant Mortality." These meetings are being much enjoyed by the general public, and are proving of much value to the local medical society.

Association of Medical Officers of the Army and Navy of the Confederacy.

The thirteenth annual meeting of this Association will convene in Mobile, Ala., April 26-28, during the annual reunion of the United Confederate Veterans. Confederate surgeons wishing to take part in the programme should so notify the Secretary, Dr. A. A. Lyon, of Nashville, Tenn., prior to the 20th of this month. Dr. G. B. Thorton, of Memphis, Tenn., is President.

Medical Examining Board of Virginia.

The next meeting of this Board will be held at Richmond, June 21-24, 1910.

Dr. R. B. S. Shackelford, graduate of University of Virginia, 1909, now of Gainesville, Va., was reported in the last preceedings of the Board as having failed, which was due to a clerical error, made by one of the examiners. He should have been reported as having *passed* the required examinations.

The South Piedmont Medical Society

Will hold its next semi-annual meeting in Danville, Va., April the 19th, with the President, Dr. J. S. Irvin, of Danville, presiding. A most excellent program has been arranged, including many interesting papers. Officers for the ensuing year will be elected. Dr. George A. Stover, of South Boston, is Secretary of this society.

The Southern Railway Surgeons

Will hold their fifteenth annual meeting at The Jefferson, Richmond, Va., May 24-26. A number of papers have already been promised, and an interesting meeting is anticipated. Dr. Charles H. Starkel, of Belleville, Ill., is President; Dr. J. U. Ray, of Woodstock, Va., Secretary and Treasurer, and Dr. George Ross, of Richmond, Va., Historian.

The Congress of American Physicians and Surgeons

Will meet in their eighth triennial session in Washington, D. C., May 3-5, 1910. Dr. A. R. Shands is chairman of the local Committee of Arrangements; Dr. Edward L. Trudeau is President of the Congress, and Dr. William H. Carmalt, New Haven, Conn., Secretary.

Dr. H. W. Dew,

Of Lynchburg, Va., was elected Chairman of the Board of the State Epileptic Colony, which met on March 24th. A superintendent will be elected at the next meeting, which takes place early this month, and at the same time it is hoped to decide upon definite plans for the establishment of the colony.

Obituary Record.

Dr. Wharton Sinkler,

An eminent nerve specialist, died at his home in Philadelphia, March 16th, after an illness of three weeks. Although born in Philadelphia, Dr. Sinkler fought in the Confederate army, serving with the Second South Carolina Regiment. He graduated in medicine from the University of Pennsylvania, and had for many years been prominent in the medical world.

Dr. Jefferson Kinney

Died at his home in Roanoke, Va., March 27th, after an illness of several months from Bright's Disease. He studied medicine at the Medical College of Virginia, from which he graduated in 1888, and for the past twenty years was located in Roanoke, where he had become well known as an eye, ear and throat specialist. A widow and two sons survive him.

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Original Communications.

SOME NEGLECTED POINTS IN THE EXAMINATION, PREPARATION AND AFTER TREATMENT OF SURGICAL PATIENTS.

By STUART McGUIRE, M. D., Richmond, Va.
Professor of Clinical Surgery, University College of Medicine; Surgeon in Charge, St. Luke's Hospital.

EXAMINATION OF THE PATIENT.

Sir James Paget, in one of his classical lectures, says: "Never decide upon an operation, even of a trivial kind, without first examining the patient as to the risk of his life. You should examine him with at least as much care as you would for life insurance. It is surely as important that a man should not die or suffer serious damage after an operation as that his life should be safely insured for a few hundred pounds."

Two separate and independent examinations should be made of every surgical patient; the first to determine the condition to be corrected; the second to determine the safety of the operation. To do this satisfactorily it will usually be found necessary to secure the aid and cooperation of several specialists. Few busy surgeons have the time or knowledge to make the necessary routine physical examination of the heart and lungs, microscopic and chemical investigation of the urine, stomach contents and blood, to say nothing of the special work which is sometimes required at the hands of the bacteriologist, ophthalmologist, neurologist, roentgenologist, and other experts. Patients do not object to prolonged and numerous examinations, but will be inspired with confidence in the surgeon by the realization that nothing is taken for granted, and that every effort is being employed to ascertain the nature of their trouble, and the best methods of treatment to effect a cure. In fact, people are now so educated in medical matters that failure to give a case a thorough preliminary examination is a cause for criticism and distrust.

PREPARATION OF THE PATIENT FOR OPERATION.

The preparation of a patient for operation should be both physical and psychical. In the past much attention has been paid to the first, and but little to the second. We now recognize that we have overdone starvation, purgation and sterilization, and have neglected to study the patient's mental attitude to the operation in order to lessen apprehension, if it is unduly present; to inspire confidence, if it is lacking; and to lay the foundation for a philosophy which will be needed during convalescence.

The surgeon's first efforts should be directed to relieving the patient's dread of going to the hospital. The laity are being rapidly educated to a just appreciation of the advantages, both from the standpoint of safety and comfort, afforded by such institutions; but some people still regard them as a cross between a prison and a pesthouse. The easiest and most effective way to overcome this belief is to induce the patient to enter the hospital several days before the date fixed for operation. In the environments of a well-regulated sanatorium excitement and fear will soon be replaced by calmness and hope.

The surgeon should see the patient daily. His bearing should be kindly but not oversympathetic. The patient should not be the object of commiseration because of the anticipated operation, but the subject of congratulation because her case is one that can be cured by surgery. Care should be taken in talking to the patient not to magnify the importance of her lesions or the difficulty and danger incident to their correction. It is also well to avoid giving unnecessary information about the etiology and pathology of her disease, or to describe the different methods by which her abnormality might be corrected. While she will listen eagerly to any statement with refer-

ence to her case, and will enter into a discussion of what is best to do for her, she realizes that she does not fully comprehend what has been said to her by the surgeon and is worried by the responsibility she has assumed in the opinion she has expressed to him.

It is, however, important at this time to inform the patient of certain symptoms, complications and sequelæ which may develop after the operation, telling her that while they entail no danger and will not affect the final result, it is well that she should realize their possibility in order that if they develop she may know they were foreseen. For instance, a patient to be operated on for hemorrhoids should be told that possibly she would require catheterization; a patient with fibro-myoma of the uterus, that artificial menopause would follow, with symptoms such as usually occur at the "change of life;" a patient with carcinoma of the parotid that facial paralysis would follow a radical operation for its removal. A word of warning before the operation will be found to be worth more than an hour's explanation afterwards to prevent discouragement from sequelæ, whose significance and importance are not understood.

Finally, the patient's fear of the anesthetic should be relieved by re-assurance, reason or ridicule. A badly frightened patient should never be sent to the operating room.

POST-OPERATIVE TREATMENT.

Some surgical patients are in good condition and require practically nothing but the mechanical correction of a local trouble. Others are as ill nervously as they are physically, and often will be more benefitted by a modified form of rest cure than by the operation itself. Most surgeons recognize this fact, but are often unable to carry out the principles of seclusion, rest, full feeding, bathing, massage and electricity, as taught by Mitchell, because of the present attitude of the public to surgery. Not many years ago an operation was considered, in words of the marriage ceremony, as something not to be entered into unadvisedly or lightly, but discreetly, soberly, in the fear of God. To-day it has become to be regarded as a comparatively trivial event, and the principal dread is the surgeon's fee. In the old days it was understood that a patient requiring a serious operation would have to remain two or three months in a hospital. At present, patients enter the hospital one day, are operated upon the next, begin to ask when they can go home before they stop vomiting, and usually are permitted to leave before it is wise for them to do so.

REASON FOR SHORT STAY IN HOSPITAL.

Nearly all surgeons admit the injurious results which frequently follow the premature discharge of a case from the hospital, but most of them try to evade responsibility by attributing the evil to the unreasonable insistence of the patient to be permitted to return home. The fault, however, is not with the laity, but with the profession. Patients would consent to longer detention in the hospital just as submissively to-day as they did some years ago if they believed it to be necessary. The fault is with a few surgeons who, for various reasons, have entered into a competition to see who can get their cases out quickest, and have thereby set a precedent which others have followed. Some have been actuated by a wish to save the patient time and money, others by a desire to advertise themselves. The public is prone to estimate the ability of a surgeon by the apparent rapidity of the recovery of his patients, and to make comparisons between different operators on the basis of the length of time they keep their patients in the hospital. This is not surprising, as even some of the profession do not seem to fully realize that, all things being equal, a wound will not heal quicker for one man than it will for another, and the number of days a surgeon keeps a patient in bed is not a measure of his surgical dexterity, but of his surgical judgment.

CONTRAST OF CONDITION IN HOSPITAL AND AT HOME.

In order to appreciate the dangers to a patient of premature discharge from the hospital, it is necessary to contrast the conditions of hospital and home life. The change is as decided and the influence as great to either sex—the man, on returning home, being confronted by financial obligations and business complications; and the woman by family cares and domestic duties.

By way of illustration, we will take the case of a woman. While in the hospital she has no responsibility, and her life is a regular one. She has comforts and conveniences, which are often as new as they are delightful. Her room is clean, well heated, and tastefuly furnished. Dainty meals are served with clock-

like regularity; a bedside table filled with books whiles away the weary hours; and an electric bell commands the services of an attractive and efficient nurse. When convalescent, a wheel chair makes accessible cool corridors, or the elevator quickly and smoothly carries her to roof gardens flooded with sunshine. Cheerful visitors bring in outside news. Other patients recovering from more serious operations inspire her with courage, and she emulates their example and tries to surpass them in rapidity of progress. It is like playing a game to see who can get well first. Above all, she is conscious of being under the watchful eye of the surgeon, and appreciates the fact that complications, if they occur, will be promptly corrected.

Now, compare the condition of this woman when she returns home. At the very outset she has to meet either injudicious sympathy or unreasonable expectations. Sometimes her friends and relatives, by a combination of commiseration and indulgence, induce her to believe that she has been the most unfortunate woman on earth, and is therefore entitled to lead a life of invalidism for the remainder of her existence. Or again, her husband and family may show in their manner, if they do not express it in words, the conviction that she ought to be in good working order after so much money has been spent in repairing her, and, as a result, she feels compelled to exert herself to discharge duties for which she is not physically competent. During the woman's absence from home the domestic economy often gets sadly out of gear. Undesirable relatives have come to make visits; servants have grown slack and impudent; children have been spoiled and pampered; and the husband's sexual appetite has not been gratified. As a consequence, in the first few days after her return she has to snub her mother-in-law, discharge her servants, clean her house, cook her dinner, spank her babies, and resist or yield to her husband's advances.

If she lives in the country, as is often the case, the contrast betwen hospital and home life is even greater. The house is usually a frame structure, with no heat in the halls, and the rooms warmed by open fires which roast one side while the other freezes. The servants are unreliable and ignorant, as competent ones have long since sought the cities. Food is usually indigestible in character and monotonous in variety. Suitable exercise is difficult to practice, because roads are rough or muddy, and there are but few objects of interest to visit. A bath can be obtained only after bringing in a washtub and heating water in a kettle, and an evacuation of the bowels can only be effected by an excursion to the garden, along a grass-grown path overhung with boxwood bushes, and by the exposure of a vulnerable portion of the anatomy to the chilling wintry blasts. Is it a wonder that the woman becomes neurasthenic and fails to get well? The day will come when country life will be as happy and healthy as pictured in books, but this will not be until increased prosperity leads to the erection of new buildings, with steam heat, acetylene light, and proper toilet arrangements; not until the creation of good roads and the perfection of automobiles lead to easy transportation; not until the installation of telephones, the perfection of phonographs, the extension of free delivery of mail, and the increased production of good magazines at small cost lead to betterment of the social conditions and mental activities of rural communities.

POST-HOSPITAL TREATMENT.

What has been said with reference to the short stay of patients in the hospital, and the conditions which frequently exist at home which work adversely to their recovery, makes it plain that those interested in their welfare should thoughtfully consider the situation and endeavor to remove the evil. The remedy obviously consists in the patient's remaining longer under the care of the surgeon, and, on returning home, being placed under the close supervision of the family physician.

A case should not be detained unnecessarily long, as it is not only a waste of the individual's time and money, but also tends to the creation of invalidism, and the formation of what is termed the "hospital habit." A case should not be dismissed too soon, as failure to secure the expected benefit from the operation may lead to discouragement, which finally results in well- establishd neurasthenia. Convalescence is a question of temperament, and must be psychical as well as physical. People are coming to regard surgeons as mechanics and patients as machines which are to be repaired. They must be taught that the operation is not everything, and that the after-treatment is often of equal importance. They must be made to understand that the operation merely corrects an

abnormal condition and puts Nature in a position to effect a cure; that often the first effect of an operation is injurious, and that the beneficial results are only experienced after the system recovers from the shock and readjusts itself to new conditions; that sometimes it takes weeks, months, or even years for this to be accomplished. They must be impressed with the fact that surgical patients are not well because their wounds have healed, but should remain in the hospital until they have regained to a certain extent their physical strength and nervous equilibrium, and that after returning home, for a time, they should lead a life of prudence and restraint.

PATIENTS SHOULD BE PROPERLY CARED FOR AFTER REACHING HOME.

The surgeon usually attempts to accomplish this by giving verbal instructions to patients when they leave, and by subsequent correspondence with them, but it can be more effectively and properly done by referring the patient back to the family physician. The reason instructions to patients are not satisfactory is because they cannot cover all eventualities, and are frequently not understood.

The reason subsequent treatment by mail is not satisfactory is because patients usually fail to give important facts, and either exaggerate or underestimate their symptoms. Also, because the surgeon cannot remember their idiosyncrasies and peculiarities, and even if he prescribes correctly, his advice lacks the personal element of suggestion which is so essential to make it efficient.

How much better it would be if the patient was examined before she left the hospital and was told that the operation which had been performed had satisfactorily corrected the condition which had given rise to her symptoms, but that she was not well and that it would require some months of proper living to restore her to full health and activity; that during this time it was important that she should be under the watchful care of a physician, and direct her, upon returning home, to place her case in the hands of her family doctor, promising to communicate with him and describe the nature of the operation, and to make suggestions with reference to her after-treatment. This would safeguard the patient's future welfare, and would overcome to a large extent the growing feeling on the part of the general practitioner that he is unfairly treated by the surgeon. The family doctor thinks, if he does not say, "I was called to one of my patients and found she needed a surgical operation. I made a diagnosis and received $2.00; the surgeon did the operation and received $200.00. It is not right that he should get all the money and all the reputation, while I, who played such an important part in the case, should receive so little pecuniary compensation and professional credit." This sentiment has manifested itself in certain parts of the country by a demand for the payment of commission or the actual division of the fee, a policy which, if carried to its logical conclusion, would be disastrous to the patient and demoralizing to the profession. Fortunately, the South has not yet reached this stage of commercialism, but a condition exists which may bring it about, if it is not appreciated and corrected. While a division of the fee between the surgeon and the physician is unethical, as it is practically a premium on dishonesty and incompetency, a division of the work, with proper compensation to both parties, is not unethical, but for the best interests of the patient and profession.

THE SURGEON SHOULD HAVE CHARGE OF POST-OPERATIVE, AND THE FAMILY PHYSICIAN OF POST-HOSPITAL TREATMENT.

Except under unusual circumstances, few surgeons are willing to turn patients over to the family physician immediately after a serious operation. Complications are often so sudden and dangerous, symptoms so slight and misleading, diagnosis so difficult, and correct treatment so essential, that no one except a man who has had long and constant experience in the management of this special class of cases is competent to have charge of them. When, however, the danger of the operation is over, and the subsequent treatment consists in regulating the various functions of the body, restoring lost flesh and strength, and re-establishing nervous and mental equilibrium, the family physician becomes the safer adviser.

With the rapidly increasing amount of surgery being done and the consequent number of convalescent patients under treatment, an educational move ought to be instituted for the study of the many peculiar factors involved. Papers ought to be written and discussions ought to be participated in by both surgeon and family doctor, taking up the various details

and discussing them from their different standpoints, until finally there is evolved a consensus of opinion with reference to the very many important points in the treatment of these patients.

Not until satisfactory relationship is effected between the surgeon and the family physician on either the line suggested or some other substitute will there be harmony in the profession and the greatest good accomplished to the greatest number of patients.

SOME INTERESTING FEATURES OF ECTOPIC PREGNANCY, WITH REPORT OF CASES.*

By SEAVY HIGHSMITH, M. D., Fayetteville, N. C.

One pregnancy out of every five hundred is said to remain extra-uterine. If we accept as true, in the human female, what physiologists have long ago recognized and proven by experiments upon lower animals that the fertilization of the ovum by the spermatazoon takes place normally in the Fallopian tube instead of the uterus, and that the ovum after being fertilized is pushed along the tubal canal by the ciliated epithelium lining of the tube until it reaches the uterine cavity, where it then implants itself for future development, then we must regard all pregnancies as primarily extra-uterine. We can only wonder that a greater per cent. do not remain so when we consider in how many ways the lumen of the Fallopian tube may be narrowed or occluded, first, by the inflammations of any character; second, by adhesions following these inflammations; third, by the impairment or destruction of the cilia lining of the tube, by either previous specific or puerperal infections; fourth, by pressure of abdominal organs; fifth, by uterine misplacements with consequent kinking or twisting of the tube; sixth, by tumors in the tube or uterine wall near its opening into the uterus.

It is said that 65 to 75 per cent. of all ectopic pregnancies occur in women who have previously had gonorrhea, the peristaltic action of the tube being thereby weakened, the resulting inflammation causing induration and narrowing of its lumen.

There is no doubt but that the pelvic inflammation has first place as an etiologic factor, but it is reasonable to suppose that the mode of dress— viz.: tight lacing—has much to do with those cases due to misplaced pelvic organs. With the advance of civilization it seems to be of far more frequent occurrence. Certainly more cases have been reported within the last few years than ever before.

Werdner states, "What was formerly regarded a freak of nature has, through a better knowledge of this condition, and especially our ability of promptly recognizing it, becomes quite a frequent occurrence." While this is no doubt true, I think that the experience of many of you will bear me out in saying that ectopic gestation is growing rather than diminishing in frequency. If this be true, where in the evolution of the human race may we expect this condition to end, and are there any satisfactory prophylactic measures which we may apply? Among those over which, to some extent, we may have control might be named, first, prophylaxis and treatment of specific inflammation; second, prophylaxis and treatment of puerperal infection; third, correction of uterine misplacement.

The most frequent site of ectopic gestation is in the Fallopian tube. It may occur at any point along the tube, and may be single or double. When double, there may be a difference of a month or more in the time of conception. One case of this kind is among those which I have to report.

According to Dr. Simpson (*American Journal Obstetrics,* March, 1904), coincident uterine and tubal pregnancy is by no means a rare occurrence. He reports 113 cases of this character; his own case went to full term after having the tube and ectopic pregnancy removed. Those implantations occurring in the inner half near the uterus where the tube is more vascular and less elastic are far more dangerous to the life of the mother than those occurring in the other half. That ovarian, tubo-ovarian or even abdominal pregnancy may occur seems no longer doubtful.

Futh reports 18 cases with satisfactory proof that the ovum was impregnated and developed within the Graafian follicle.

Dr. Baer reports a case that went to term.

Of the abdominal variety, according to the best authorities, it seems doubtful whether they are ever of primary origin, but that they become impregnated in the tube or in a Graafian follicle, and later rupture or are expelled into the abdominal cavity, where they imbed them-

*Read before the Tri-State Medical Association of the Carolinas and Virginia, at Richmond, February 15-17, 1910.

selves and continue their development, as a secondary growth.

However, many cases of abdominal pregnancy have been reported which have gone to term. These have ended either in spurious labor, with death of both mother and child, or by surgical interferences with possibilities for both. The argument against primary abdominal pregnancy is that the only soil suitable to receive the impregnated ovum is a mucous surface lined with epithelium.

According to Webster, Mullerian structures which are found only in the tubes and Graafian follicles are suitable soil. It seems barely possible on the other hand that the ovum could fasten itself to the smooth surface of the visceral peritoneum.

There are some who believe this is made possible by the migratory and corrosive action of the trophoblastic cells of the ovum. It is a recognized fact that these cells play an important part in the rupture of a tubal pregnancy, often eating their way into the walls of the tube, rendering these points so thin until, if seen before rupture, they present an uneven, punched-out appearance. They may pass through blood vessels on their course causing hemorrhage into the adjacent tissues, or even making their way entirely through the tube, leaving pin-hole openings through which the hemorrhage may take place.

But it is not my purpose to go into pathology, and, after all, the most important point is *the diagnosis*. This is easy if your patient gives you a typical history and presents herself a clinical picture. Should you be called to see a married woman of child bearing age, that had a previous injury or pelvic inflammation or uterine displacement, and if there has been a period of sterility following, if there has been a cessation of menstruation, or if she has subjective signs of pregnancy, and calls you on account of colicy pains, or tearing pains,—pains resembling labor in the region of the tube or ovary, and should these be accompanied by return of flow or hemorrhage from the uterus; if you should see her two, three, or four times with attacks of this kind, at intervals of from twenty-four hours to two weeks, with comparative comfort between these intervals; or, if you should make bimanual examination and find the uterus normal in size or nearly so, and should further find a mass in the cul-de-sac or in the tube, in its normal position, and if the mass comes off directly from the horn of the uterus and should be soft in consistency, pulsating and tender to the touch, and, if you should have found a decidual cast in the discharges from the uterus and the microscope should show chorionic villi; if you have all this store of information and find your patient in a state of collapse, an anemia following an attack like those described, and your patient's face should look anxiously up into yours and give expression to the pain she suffers; and if the pulse is rapid and feeble and the respiration sighing in character, then one could hardly be mistaken.

Or, if knowing that pregnancy existed for four months or more, you should, by examination, outline the foetus in the pelvic or abdominal cavity, then your diagnosis would be clear. Unfortunately, however, the majority of cases rupture from the fourth to eighth week, often before the patient or even the physician, if one has been consulted, is aware that anything has gone wrong. In many cases the first symptom is a sharp, excruciating pain consequent upon confined hemorrhage. Should this hemorrhage be sufficient to rupture the tube, or if ovarian or abdominal pregnancy, to rupture the gestation sac, the symptoms of shock which may or may not be in proportion to the hemorrhage follow. Prompt action may save the patient; delay is dangerous. So variable are the symptoms and so often no symptoms at all, until the time of rupture, that the patient, although under competent medical supervision, may suddenly, unawares, become exsanguinated. To be able to recognize these conditions by palpation seems to be the only positive way, if we are to diagnose early, as should be done. This is not always easy, and unless very gently and carefully performed, palpation is a very dangerous procedure since we may confirm the diagnosis by rupture before we are prepared for this emergency.

Among the recent original articles appears one by Dr. Channing W. Barrett, of Chicago, upon "The Recognition and Treatment of Ectopic Gestation" (*New York Medical Journal*, January 22, 1910). Dr. Barrett's article is the most complete, comprehensive and by far the most instructive of any I have yet seen. In speaking of the management, he says: "We have but to consider the best interests of

the mother and to decide what may be expected if the condition is left to its own undoing; what may be expected of the measures which undertake to kill the ovum; what may be expected of surgical measures, and when may surgical measures be expected to accomplish most. Extra-uterine pregnancy is in no means a medical disease; no drug treatment, nor rest, nor manipulation, nor Christian Science, can be expected to postpone indefinitely the almost inevitable rupture or to prepare the patient so as to make rupture safe.

"Not all cases will die from rupture, but we have few facilities for determining which one will prove fatal. If hemorrhage following rupture takes place in the broad ligament or is circumscribed by adhesions the danger is lessened, but that cannot be prophesied before rupture, and very frequently cannot be discovered after, without operation, and even if properly diagnosed a secondary rupture may take place later. An ice bag or "absent treatment" is a poor substitute for a ligature in intra-abdominal hemorrhage. Any delay after diagnosis has been made makes possible rupture, greater hemorrhage, the introduction of bacteria and formation of attachments, which may prevent immediate hemorrhage, but lead to more complicated operation later."

All writers agree that the condition is distinctly surgical. The mortality of the ectopic fetus is so nearly 100 per cent. that in our treatment we need only consider the mother's interest.

Werth in 1887 is quoted as saying that "The ovum in making its bed digs its own grave."

If the child lives at all the resurrection is by surgery, and its prognosis never very hopeful. In rare cases where nature takes care of termination of gestation, either by rupture or by death of the fetus and the mother survives, few, if any, have but a poor lease on life, in face of the pelvic abscess, pus tube, salpingitis and endometritis, or even the encysted foreign body, which must inevitably follow. I believe further that it would be astonishing if we knew how many women die as a result of unrecognized misplaced conception. Much of our most valuable information on this subject has been gained by the findings of the coroner in women thought to be the victims of foul play. Many of the cases that survive the death of the fetus are often treated as an incomplete abortion, until the necessity of a laparotomy shows the real trouble; and again, it sometimes happens that a correct diagnosis is made only by exploratory incision or while the patient is being operated on for some pathological condition of the pelvic organs, which may or may not co-exist. This is what happened in the case I first report.

Case I.—White, single, aged 18, servant. Personal history: menstruated at 14; at age of 15 had an injury, menstruation ceased for three months, since this time always regular; no dysmenorrhoea, no leucorrhea; occasional pain in right ovarian region since injury, pain did not radiate to the thigh and rs not increased during menstruation.

Clinical history: Had been flowing for two weeks when I was called to see her; flow began at her regular menstrual period. She had not missed; had suffered no pain except when climbing steps, carrying water or exertion of this kind. The flow, while not profuse, had caused anemia and weakness. She had not given up work when first seen. Bi-manual examination revealed uterus normal in size and position; also, a mass in right cul-de-sac the size of an egg, soft and movable.

Diagnosis.—Traumatic, hæmatoma with prolapse of right ovary. Operation advised on account of of continued hemorrhage.

Am frank to say we were mistaken. On opening the abdomen found tubal pregnancy located about midway, of perhaps about six to eight weeks' duration. The mass was removed unruptured; also, a part of the left ovary which formed a cyst the size of a walnut which was ruptured in removing. A point of interest in this case was that while the tube had not ruptured, there was an escape of blood, two or three ounces, through the fimbriated extremity into the peritoneal cavity. On account of this and the rupture of the cystic ovary, a drain of small rubber tube and gauze was left in for forty-eight hours. Patient made complete recovery.

Of the six other cases operated on by Dr. J. F. Highsmith and myself within the past two years, all were tubal; four had ruptured, with hemorrhage into the abdominal cavity; one had ruptured into the fold of the broad ligament, forming a tumor the size of a cocoanut; one was unruptured, but showed hemorrhage into the chorionic and placental tissues; one had pregnancy of both tubes, right one largest in size

and ruptured, left unruptured. This patient gave history of previous pelvic inflammation. Two had had previous miscarriages; one a period sterility for eight years; one had a retroverted uterus which was suspended at the time of operation; one gave negative history as to probable cause of ectopic pregnancy and was nursing a child fifteen months of age. Two of the seven cases operated upon died three and five days after operation, respectively; both were cases where operation was postponed until infection from the blood and dead tissues had already begun. One had had rupture three days; the other four days previous to operation; both had fever at the time of operation. In one of these cases operated on four days after rupture occurred, on opening the abdomen found intestines and pelvic organs saturated in black and unclotted blood, which gave off a peculiar odor faintly resembling formaldehyde. The other case that terminated fatally, operated on the third day after rupture with fever 102 degrees, showed on opening the abdomen that rupture had occurred in the folds of the broad ligament, forming a tumor of considerable size, the blood within being held under pressure, which caused the sac to rupture as soon as the abdomen was opened. Two hours after operation fever reached 104 degrees; patient died third day after operation. I give description of what happened in these two cases because I feel that we often learn more from our mistakes and failures than from our successes. Without a repetition my conclusions are briefly these:

1st. Do not expect all symptoms to be present;

2d. Try to make an early diagnosis. Remember, ectopic gestation is a possibility in all pregnancies with unusual symptoms. Look for it in all pregnancies where there is a show, or hemorrhage. Search diligently for it if it can be admitted, in cases with pelvic distress.

3d. Having made your diagnosis, earnestly advise immediate operation. If there has been no rupture or hemorrhage you are lucky, and your patient fortunate for having your services. If rupture has occurred, all the more need for action.

4th. In a warm room with an anesthetic of ether, and a competent person to give it, a flow of warm, normal saline solution high into the bowel while you operate, your patient has far better chance than if you wait for the shock to subside. By waiting till shock is over your services may not be needed. The second shock of delayed operation may be more disastrous than that at the time of rupture.

5th. That infection from the fluid and dead embryonic and placental tissues set free in the pelvis, especially if in the abdominal cavity, may begin soon after rupture.

6th. That it is safer to drain for twenty-four to forty-eight hours all cases that have been ruptured.

REVIEW OF ROENTGENOLOGY.*

By RUSSELL H. BOGGS, M. D., Pittsburg, Pa.

In the Roentgen rays we have a truly great therapeutic and diagnostic agent. At first limited to the location of foreign bodies and the detection of fractures, it has now added a precision hitherto unknown to the diagnosis of renal and ureteral calculi, bony lesions, diseases of the gastro-intestinal tract, and of the thorax, as well as the accessory sinuses of the nose. In fact, there is not a department of medical science that the Roentgen rays have not benefitted.

Calculi in the urinary tract, regardless of the composition of the stone, can be detected in at least 95 per cent. of the cases. This statement would be confirmed by many operators all over the world. Hepatic calculi, as a rule, do not contain sufficient mineral substance to cast a shadow on the plate. The rays here, instead of being an assistance, would, with the average run of cases, only lead to confusion.

During the last two years the Roentgen rays have been used quite extensively in studying the gastro-intestinal viscera after a bismuth meal. Although radiographing the gastro-intestinal tract, after a bismuth meal, presents no technical difficulty to any competent radiographer, the interpretation is not always easy. It sometimes requires considerable study by one familiar with both the normal and the abnormal.

The radiogram of the stomach will show the size, form and motor efficiency. The stomach evacuates two ounces of bismuth in a pint of fluid in about six hours, when the motor efficiency is normal. If the plate still shows bismuth in the stomach after six hours it indicates motor insufficiency, either absolute or relative. The presence and extent of ptosis of the

*Read before the Pittsburg Academy of Medicine, March 8, 1910.

stomach or colon can be definitely and absolutely determined by the bismuth radiogram.

Changes in the bone tissue and periosteum are clearly shown by the Roentgen rays, but the pathological diagnosis between tuberculosis, syphilis, osteomyelitis, and sarcoma is sometimes difficult. In the past, there has been a tendency to look on all bone changes as tuberculosis. Acute miliary tuberculosis and acute tubercular periostitis, as a rule, cannot be shown by the X-ray plate, as there are insufficient bony changes to cast a shadow. The subacute and chronic forms, which are the most common variety, can easily be demonstrated. It is always important to remember that bone atrophy, first described by Suedeck, is marked in many cases of tuberculosis of the bone, and reaches a high degree of advancement in tuberculosis. This is in marked contrast to the atrophy which may accompany osteomyelitis; here the atrophy never reaches such an advanced stage, recedes early and never involves the bones distal to the next intra-articular cartilage.

Time and experience have shown the value of the rays in the diagnosis of pulmonary tuberculosis and of mediastinal growths and aneurism. As a radiogram will show any abnormality in density, it is a valuable method of diagnosing consolidation, effusion, pneumothorax, enlarged glands, cavities, pneumonia and thickened pleura. Consolidation produced by tuberculosis is irregular in comparison to that produced by pneumonia. A tubercular lung presents a more irregular and spotted appearance with clear shadows. Effusion is more dense and more even than any other thoracic lesion. If the X-ray plates show enlarged glands plainly they are usually calcified. When the glands are calcified it is generally considered that they are due to old tubercular lesions and are inactive. Of course, this does not prove that the patient does not have other active tubercular lesions. Again, when anlarged glands are found we must not jump to the conclusion that they are produced by tuberculosis, as the following may have caused the enlargement: Syphilis, sarcoma, carcinoma, lymphatic leukemia and chronic inflammatory processes. By the aid of the clinical history and symptoms these can usually be discriminated.

The experiences of a number of those who used the rays in studying pulmonary tuberculosis can be summarized as follows:

1. That the extent of the disease is more accurately determined by the X-ray than the physical findings alone.

2. That in doubtful cases the rays often afford sufficient information to make an accurate diagnosis.

3. That the ray is a useful method of recording the lesions and to determine the progress made by the treatment.

4. That the radiogram records nothing but variations in density and leaves the other factors to be determined by clinical methods.

5. That frequently, when physical signs were present in one side, the radiogram would show infiltration in both lungs.

6. That cavities can be more carefully diagnosed and located than by clinical methods.

Any abnormal widening of the mediastinum can be shown by the radiogram. It may be caused by aneurism, carcinoma, tuberculosis, sarcoma, fibroma, lymphatic leukemia, cysts, lipoma or an enlarged thymus. When the growth is situated over the large vessels it often pulsates, whatever its nature. This is particularly true of a sarcomatous growth. The outline of an aneurism is usually more regular and the position different from that of a growth.

The success with which the frontal and accessory sinuses can be radiographed is quite well known. The radiogram is not only one of the most accurate methods of diagnosing pus and diseased membrane, but greatly aids the operator by showing the size and shape of the sinuses. The lateral view shows the depths of the frontal sinus, and the anterior posterior shows the size and outline. The mastoid cells have been radiographed by a few operators, but their reports do not seem to be of sufficient value, up to the present, for us to expect much of this class of work.

Stereoscopic radiography, while it has been done for a number of years, has not attracted much attention until lately. On account of the short exposures now possible, this method has a considerable value of practical usefulness.

Radiotherapy has passed from the stage of empiricism to that of exact science. The profession now appreciates the absolute necessity of making a careful study of the physical properties and physiological actions of the rays,

the same as in the employment of other therapeutic agents.

The lesions which have been successfully treated are varied. The operator should understand the action of the rays, know the tissues first affected, what changes take place, and the exact process of repair, so he can discriminate those conditions in which he can expect benefit from those in which he can do nothing but harm. We are not hearing so much about physicians applying the rays in such a manner as to give a small and inefficient dose to be on the safe side when, therapeutically, a large dose is required.

In applying the rays the action can be varied from a mild erythema to a necrosis, according to the amount and kind of energy absorbed.

According to the biological actions of the Roentgen rays, diseases have been classified as follows:

1. Atrophy of the skin and its appendages; affections like acne or hyperidrosis where it is necessary to decrease the size or functional action of the sebaceous glands or of the sweat glands, respectively.

2. Destruction of the microbes in living tissues; lupus vulgaris, etc.

3. Alterations of metabolism, such as eczema, psoriasis or any other of the indurated inflammatory skin diseases where it is necessary to cause absorption of the inflammatory products.

4. Anodyne action on pain of malignant tumors, neuralgia and pruritus.

The above indications offer rather a wide field for application, either alone or in conjunction with some other line of treatment. In some affections more than one of the actions may be indicated. The question of dosage is a difficult and complex one since we must take into account the diversity of the lesions, the physical condition of the patient, the region affected, and the histological structure of the diseased area, as well as its depth. These must be carefully considered in order to produce the best results. Too great prudence cannot be exercised when applying the rays—prudence induced not by fear of excessive dermatitis, but gained from experience and careful study.

In the treatment of stubborn cases of acne and sycosis vulgaris, radiography has proven superior to any other method. It may seem strange that in pustular acne the lesions usually disappear much more quickly and are less prone to recur than in the milder or in papular acne. Many cases of sycosis vulgaris which have resisted all other treatment, can be cured by comparatively few exposures. As a rule, it is not necessary to prolong the treatment to the point of erythema, or even to cause the removal of the hairs. In cases of tinea sycosis it is always necessary to produce epilation. In acne rosacea the results are not nearly as good except where glandular involvement predominates. It is usually advisable in most cases to clear up the glandular inflammation and to destroy some of the vessels by electrolysis. Probably it requires more experience and judgment to produce uniform results in acne than in any other skin disease treated by the Roentgen rays.

In psoriasis, the rays have proven of much value. The lesions can always be made to disappear under treatment, but there is a tendency to recur. There is no question but that the recurrence is delayed longer than after any other treatment, and that the recurrence is of a much milder type. A large proportion of cases can be cured by a series of treatments covering considerable length of time. When we consider the small amount of radiation that is necessary to clear up the lesions when the treatment is given cautiously, the results are very satisfactory.

Rebellious cases of eczema will usually clear up under the treatment by the rays. It would not be good judgment to treat every case of eczema, regardless of the cause, stage or type of the disease, Radiotherapy should be reserved for the chronic and recurrent cases.

It is not unusual for chronic cases of localized ezcema which have resisted all other treatment, to disappear after from five to ten treatments. It has been pointed out by a number of dermatologists the great advantage of treating lichen planus. What has been said in regard to eczema will apply to lichen planus.

The results in the treatment of malignant diseases depends entirely upon the nature of the growth and upon its situation. It is the general opinion, that we can expect very little, if any, benefit from the post-operative treatment of carcinoma of the uterus, on account of the adjacent glands being so deeply situated. In the epithelioma, on the other hand, it is a question if it is necessary to operate

at all, in the majority of cases. Pusey, who has had a wide experience, and who has treated as many cases of epithelioma as anyone by any other method, in an article before the Sixth International Dermatological Congress in New York, summing up the number of cases which had been cured over three years, considered radiotherapy to be the most efficient routine treatment we possess. Epithelioma involving the lower lip or mucous membrane should undoubtedly be excised as well as all of the diseased tissue, and then the adjacent glands rayed as a phophylactic measure.

In the post-operative treatment of carcinoma, probably the rays are the most useful when the mammary gland is involved, but where the adjacent glands under the clavicle and near the site of the operative field can be made to undergo a fibrous degeneration by a number of post-operative X-ray treatments. But if the bronchial and mediastinal glands are involved the X-ray only has an inhibitory effect on the disease. Even in these cases, it is the universal opinion, the radiation will prolong the life of the patient from one to three years.

The most marked effect of the Roentgen rays in the treatment of carcinoma of the breast has been shown in inoperable cases. Roentgenologists all over the world have reported cases where the external signs of the disease have cleared up under the Roentgen rays with exception of a small hard fibrous mass showing on removal and microscopic study, very little carcinomatous tissue. It has been suggested by both Roentgenologists and Pathologists that the X-ray raises the resisting power of the patient against carcinoma.

Malignancy of sarcoma varies considerably and it is difficult to draw conclusions. As Pfahler and Babcock have had the largest experience in the treatment of sarcoma, I will quote a paragraph in which Dr. Babcock discussed the surgical and Dr. Pfahler the radiotherapeutical side of their combined use of surgery and Roentgen rays in the treatment of sarcoma.

"The measures that have been employed against malignant tumors include operative removal, the local use of radiant energy, topical applications or injections of chemicals, the interual administrations of certain drugs and toxins, and a general roborant regime. The method of treatment that we would here advocate consists of certain of the milder surgical measures combined with a more persistent and thorough use of X-ray treatment than usually is given; certain topical applications and the administration of certain inhibitory agents. None of these measures are new, the combination and method of application of these generally known principles are the novel features of the treatment.

"The most potent single agent known against sarcomatous growth is probably the X-ray. The X-rays have a destructive effect upon all living tissue-cells, but the action is especially pronounced against lymphoid and young connective tissue-cells. Thus, the type of embryonic connective tissue of which sarcoma is composed is especially vulnerable. The rays moreover, increase the amount of fibro-connective tissue in the area treated and thereby tend to produce a denser encapsulation of the growth and to cause obliteration of the adjacent lymphatic channels. There is no reason to believe that Roentgen treatment increases the tendency to metastasis."

The clinical results of the Roentgen rays in the treatment of tuberculosis of the skin and glands, have proven this method to be so efficient, in the hands of a number of men, that many have adopted it as a routine treatment.

The results in tuberculous adenitis, especially the cervical variety, deserve a great deal more attention and serious consideration than they have been given by most physicians and surgeons. The cosmetic results are better, and the end results more permanent than after any other treatment. The Roentgen rays appear to have a constitutional, as well as a local effect, thus rendering recurrence less common.

In exophthalmic goiter, it is well demonstrated that the Roentgen rays produce a reduction in the size of the thyroid gland, and that its hypersecretion is reduced. The amount of reduction in size and the reduction of the secretion is governed by the time, quality and quantity of the rays.

The amount of hypertrophy and the degree of hypersecretion may not have any direct relation to each other.

The improvement noted, consists of the reduction of the gland, slowing of the pulse, relief of the nervous system and increase of weight and strength of the patient. The exophthalmos is the least and last effected by the rays. This shows the necessity of beginning Roentgen treatment early, as it will control

the symptoms in a large percentage of the cases.

Time will not permit the discussion of numerous conditions in which the X-ray has scored an occasional, unexpected and gratifying success, but in which experience is not yet sufficient for us to formulate definite principles in regard to indications, methods and dosage, nor indeed to promise certain results. They encourage us to believe that the future of the X-ray will be as progressive as was the past.

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THE PREVENTION OF OPHTHALMIA NEONATORUM.*

By JOHN F. MORAN, M. D., Washington D. C.

Ophthalmia neonatorum has been known for many centuries, but it is only in a comparatively recent period that the disease has been recognized to be largely due to the direct, or indirect, contamination of the infant's eyes by the infected vaginal secretion.

Gibson, in 1907, drew attention to this fact and recommended the removal of the vaginal secretion and the cleansing of the infant's eyes, but his views were tardily accepted. It was many years later when the general belief that light, air and dust were factors in its production was abandoned and the true cause proven. This was definitely settled when Neisser, in 1879, demonstrated the constant presence in the gonorrhœal secretion of the vagina of a particular kind of diplococcus.

For a long time after every case of ophthalmia neonatorum was regarded as of gonorrhœal origin, until Axenfeld,[1] in 1898, showed that the pneumococcus and colon bacillus were occasional factors, and that the conjunctivitis was milder and of shorter duration than that due to the gonococcus. Since then the Lœffler bacillus, Koch-Weeks bacillus, micrococcus catarrhalis, streptococcus, staphylococcus and other bacteria have been found in the secretion of inflamed eyes at birth. It is now generally estimated that 75 per cent. of the cases of ophthalmia neonatorum are caused by the gonococcus and that the other germs produce at most a catarrhal conjunctivitis which rarely leads to the disastrous consequences that so frequently follow gonorrhœal infection.

*Read before the Georgetown University Medical Society, February 12, 1910.

Ophthalmia neonatorum is designated primary and secondary, depending upon its relation to the time of the birth. Primary ophthalmia is the result usually of neglect to use the prophylactic, or faulty technic, while secondary ophthalmia is generally the result of inoculation of the eyes with the infected lochia, or contamination from other sources, and is due to ignorance or relaxed vigilance on the part of the attendant or mother.

After Crede,[2] in 1881, published the result of his experience with the preventive treatment of ophthalmia neonatorum with a 2 per cent. silver nitrate, it was quickly adopted in many maternities and clinics. The results were striking and it was hoped that a specific for this terrible scourge had been found. The morbidity was rapidly reduced from over 10 per cent. to less than 1 per cent., but it has not been possible to prevent it completely.

The objection offered to the use of the 2 per cent. solution of silver nitrate is, that it frequently produces a conjunctivitis of greater or less severity, requiring much nursing and exposing others to the danger of infection from the transference of the discharge.

With a view of avoiding these drawbacks many obstetricians are using a 1 per cent. solution, and Graef claims excellent results with one-fourth of a 1 per cent. solution.

During recent years a number of substitutes, the product of the synthetic chemist, have been introduced to replace silver nitrate. The claim for them is that they are equally as efficacious that they penetrate more deeply, possess higher bactericidal power, and do not stain the conjunctiva or cornea, and, lastly, they cause little, if any, pain and can be instilled by the inexperienced without risk. Clinical investigation has confirmed some of these claims and at the same time negatived others.

In a recent report[3] of a committee, of which the writer was a member, to the Obstetrical and Gynecological Society, on the Status of the Prevention of Ophthalmia Neonatorium, are the tabulated replies, received to a circular letter, sent to a number of the leading maternities and obstetricians in the United tSates and Europe. The following questions were submitted:

1. What is the routine treatment in your hospital for the prevention of ophthalmia neonatorum?

2. Would you recommend the treatment to be carried out by midwives?

3. Do you recommend the remedy to be dispensed by the Health Department?

Forty-two replies were received. All employ prophylactic measures, but differ in the choice and strength of the solution, technic, regulation of midwives and the advisability of the Health Department dispensing the drugs.

Twenty-five use silver nitrate varying from one-half of 1 per cent. to 2 per cent. Fifteen use argyrol, from 5 to 50 per cent. Five employ Sophol, 5 per cent. One prefers silver acetate, 1 per cent.; another hydrarg. bichlor., 1-2,000. Protargol is used by four, but supplementary, to nitrate of silver in three and hydrarg. bichlor. in one.

The questions relating to midwives and the dispensing of the prophylactic by the Health Department, were only submitted to the hospitals in the United States and there were thirty-two replies. Twenty-five favored the use of prophylactics by midwives, but several advise that the midwives be taught the proper method of application, while others recommend that only substitutes for silver nitrate be employed by them. It is observed that those who oppose the treatment by midwives, all use silver nitrate, and one of the objectors states that the drug is too powerful and dangerous to be entrusted to the uninitiated. Twenty recommend that the prophylactic be dispensed by the Health Department, while thirteen object, one regarding it as another socilalistic measure.

It is worthy of note that only 60 per cent. of the institutions quoted use silver nitrate exclusively. These figures were received from widely separated sources and may reasonably be taken as a fair index of the trend towards the employment of substitutes for silver nitrate, in the preventive treatment against ophthalmia neonatorum.

This report and a review of the literature shows that in this country silver nitrate, argyrol and protargol are the remedies generally employed as a prophylactic; while abroad, in addition to these, argonin, collargol, albargin, itrol, sophol, largin, silver acetate, etc., have been used and recommended. Stephenson says that some of these have already sunk into well-merited oblivion, but others are calculated to replace at no distant day.

Argyrol is rapidly growing in favor, is largely used in private practice and has been introduced into many hospitals. According to Craigin,[4] a 25 per cent. solution is equally as effective as one of 2 per cent. silver nitrate in gonorrhœal ophthalmia, does not cause pain or produce irritation and has the important advantage that it can be applied by the nurse, however, it is of comparatively little value in staphylococcus and streptococcus infections. In his service at the Sloane Maternity, in 8,000 births, covering a period of seven years, he used as a prophylactic measure five methods of treatment, with a view of selecting a solution that would give the greatest amount of disinfection with the least irritation. He says that while with the use of the 1 per cent. silver nitrate solution and 5 per cent. protargol solution there was less irritation, it looked as if it was gained at the expense of protection, and their use was, therefore, abandoned. With a 10 per cent. argyrol solution there was complete absence of irritation, but it was found upon clinical and bacteriological investigation to be of insufficient strength and, therefore, did not afford complete immunity. The 2 per cent. silver nitrate solution and the 20 per cent. argyrol solution were proven to be absolutely bactericidal, and the latter is to be preferred because of its freedom from irritation and that it can be applied at frequent intervals, if necessary, with perfect safety.

In the Columbia Hospital, Washington, D. C., from 1882 to 1896, when silver nitrate was used as a prophylactic, in 6,166 births there were 177 cases of ophthalmia (2.87 per cent.). There were two cases of blindness, one total; five cases with opacity of one cornea, and one case with opacities of both corneas. In 1896 argyrol was introduced, first using a 10 per cent. solution, but as this did not prevent ophthalmia it was increased to 25 per cent. In 1,070 infants treated with argyrol there were twenty-eight cases of ophthalmia (2.61 per cent.). There were no permanent injuries to the eyes. From August 1, 1909, to February 1, 1910, sophol was employed as a prophylactic, and the results are given below.

In the absence of complete bacteriological and microscopical examinations, particularly in the early records, it is impossible to estimate how many of these cases were due to infection

and how often the prophylactic may have been the responsible agent.

While there is apparently little difference in the percentage of the silver nitrate and argyrol statistics, there has been observed, however, since the introduction of the silver substitutes, a marked difference in the intensity of the disease—it rarely being necessary to quarantine the infant. Again, late infection is a variable factor in the statistics, depending largely upon the care and vigilance exercised by the attendants and the carelessness and ignorance of the mother, so it might serve to explain, partly, at least, the small difference in the figures of the two series.

Zweifel speaks enthusiastically of the action of acetate of silver in the prevention of ophthalmia. In a letter recently received from him, he says, that in fourteen years' experience with the drug blenorrhea occurred in only 0.02 per cent. of the cases, and irritation is not more frequent or greater than with 1 per cent. silver nitrate, as was demonstrated by instilling the silver nitrate in one eye and the silver acetate in the other. Seitz has obtained a like favorable result in 1,000 births in the Munchen Frauenklinik, and Scipiades also, in the Traufferschen Klinik, Budapest.

Darier,[5] and his pupil, Valencon, are warm advocates of protargol. They employ it in 15 to 20 per cent. solution and find it to be less painful and irritating than silver nitrate. Englemann,[6] in the Bonner Frauen Klinik, in 1,000 cases, observed 20 per cent. irritation, usually of mild character, from the use of protargol. Piotrowsky,[7] in the Hebamenlehrenstalt, Krakau, noted 10 per cent. reaction in the treatment of 1,030 cases after the use of a 10 per cent. protargol solution. V. Herff, in the Frauenspitale, Baselstadt, in 3,009 births, in which the same remedy was employed, had only two late infections, but there was 30 per cent. primary reactions.

v. Herff[8] discarded protargol because of the large percentage of inflammatory reactions. He next tried argyrol in 650 cases, but not being entirely satisfied, he then experimented with sophol. Sophol is a yellowish-white powder, composed of formaldehyde, nucleinic acid and 22 per cent. silver and is freely soluble. The solution must be prepared in cold water, as heat dissociates the loose combination of formaldehyde in the preparation. In preparing the solution the powder must be dusted on the surface of the water in a shallow dish and allowed to dissolve without stirring, then carefully filtered and stored in dark colored bottles. Neglect to rigidly follow these directions will lead to unsatisfactory results.

In over six thousand cases in which the sophol solution was instilled under the direction of v. Herff, there were one primary and one late infection. The case of primary infection was due to inoculation in a known gonorrhœal subject during labor, in which a prolapsed uterus was replaced. The late infection occurred on the ninth day in an infant whose mother was suffering with condylomata of the vulva. There was 10 per cent. primary reactions, usually of mild character. In 1,436 births in the Munchener Frauen Klinik[9] in which sophol was used there were one primary infection (0.07 per cent.); one late infection (0.07 per cent.), and three cases of inflammatory reaction of mild intensity. A solution six months old has been found to be stable and effective and not any more irritating than a recently prepared one.

Beginning in January, 1909, Menge[10] has employed sophol in the Universitats-Frauen Klinik, Heidelberg. The solution has been instilled into the left eye of the infant and a 1 per cent. silver nitrate solution in the right eye. He finds that irritation occurs less frequently with sophol. Two cases of blenorrhœa, both late infections, occurred, both in the second week. The left eye was infected in on infant and the right eye in the other.

Gallatia[11] reports the use of sophol as a prophylactic in 280 cases, in the Landesspitales, Laibach. There was no early infection, notwithstanding that two of the mothers were suffering with gonorrhœal vaginitis at the time of delivery.

Bock,[12] Kraus,[13] and Bondi[14] have also used sophol in many inflammatory diseases of the eyes with excellent result. Bock finds it to be particularly effective in recent cases; but in those of long standing, while it rapidly diminishes the discharge, in many instances, it is necessary to resort to the use of silver nitrate to effect a cure.

Being much impressed with the excellent results obtained with sophol by v. Herff and others

we were anxious to give it a trial. Through the courtesy of Dr. Cabell, of the visiting staff of Columbia Hospital, and Dr. Lawson, of the visiting staff of the Freedman's Hospital, the remedy was used in these institutions in two series—August 1, 1909, to October 31, 1909, and November 1, 1909, to February 1, 1910. A 5 per cent. solution, freshly prepared every two weeks, was employed. In the first series 153 infants' eyes were treated, 93 in Columbia Hospital and 60 in Freedman's Hospital. Of those treated at the Columbia Hospital there were 13 with primary irritation, lasting from a few hours to several days, all yielding to boric acid irrigation. There was no primary infection, although one mother had been under treatment in the hospital for more than a week for a severe case of vulvo-vaginitis. The infants' eyes were wide open immediately after birth and had a dull glazed appearance with clouded cornea. Prompt instillation was made and no infection followed.

There were eight late infections, occurring from the third to the fourteenth day after birth. Six yielded to the sophol and boric acid applications in from a few hours to eight days. One case in which the lanceolatus was found left the hospital on the eleventh day of the treatment improved; and another, in which the microscopical examination was negative, left also on the eleventh day of treatment, improved.

Dr. Lawson reports that sixty infants received the 5 per cent. sophol solution at birth in the Freedman's Hospital, and the results were very satisfactory. In but one case was there anything more than a slight inflammatory reaction observed. One baby developed a purulent conjunctivitis, which was slight and cleared up within five days, during which time the sophol solution was instilled three times daily. The mother in this case had a marked vaginal discharge at the time of confinement.

In a second series extending from November 1, 1909, to February 1, 1910, 130 more infants, 80 in the Columbia Hospital and 50 in the Freedman's Hospital, were given the sophol prophylaxis, and in neither was there any primary infection.

In the Columbia Hospital series there were fifteen cases of primary reaction and five cases of secondary infection. The percentage of primary reaction was greater than in the first series. The interne, Dr. Maclay, suspected that the solution was at fault, and replaced with a fresh one with improved results. Since November 1st, the infants' eyes have been bathed at birth with a saturated solution of boric acid and the prophylactic instilled into the eyes immediately thereafter, under the supervision of the interne, and a decrease in the morbidity has been observed. To prevent secondary infections the waiting mothers are frequently told of the danger of the lochia; the infants are not tubbed until after the cord has fallen off; the puerperal cases are repeatedly warned not to soil their hands with discharges from wounds *and not to rub the infant's eyes.* These are simple rules, but it is necessary to repeat them again and again in order to obtain satisfactory results.

Dr. Lawson informs me that in the last fifty cases at the Freedman's Hospital in which the sophol was employed, in not a single instance has a purulent conjunctivitis developed. He also says that an infant admitted to the hospital suffering with gonorrhœal opthalmia, as demonstrated by the microscopical examination, was successfully treated with sophol. In the two series 174 infants were treated at the Columbia Hospital and 110 at the Freedman's Hospital, making a total of 284. In both institutions the primary reactions yielded to boric acid irrigation and all of the secondary infections were cured by the sophol instillations. Many of the secondary infections were non-gonorrhœal, as demonstrated by the microscope; so it is seen that we have in sophol a very valuable remedy for the prevention and cure of the various infections of the eyes of the new-born.

The silver preparations generally are unstable and decompose more or less rapidly on exposure to the light and air. The solutions are also inconstant and many cases are of record where these preparations were increased to several times their original strength by evaporation, and where their application caused marked inflammatory reaction and even the loss of normal eyes. These drawbacks are particularly true of silver nitrate, and as its instillation requires absolute precision to prevent serious injury, *it should never be entrusted to the midwife.*

From the foregoing data it is seen that the 2 per cent. silver nitrate solution is effective

in the prevention of ophthalmia neonatorum, but it is very painful and irritating; the 1 per cent. silver nitrate solution, while not as painful and irritating, is not sufficiently protective; silver acetate and protargol are efficient germicides and much less irritating than silver nitrate; argyrol is practically free from pain and irritation, but is principally serviceable in the prevention of gonorrhœal ophthalmia; sophol is effective not only in the prevention of ophthalmia due to the gonococcus, but also in that caused by other bacteria. It is also less painful and irritating than all the other silver preparations, save argyrol, while as regards stability, it excels them all. It can be dispensed in solution or tablets, and is, therefore, the most satisfactory and convenient prophylactic yet produced.

It is estimated that more than 50 per cent. of the births are cared for by midwives and that at least 30 per cent. of the blindness is due to ophthalmia neonatorum. It has been clearly proven that this disease can, in most instances, be prevented, and when it does occur, prompt and intelligent treatment will effect a cure with almost absolute certainty. Yet, in spite of this knowledge, the percentage of blindness from this source is high and is a severe commentary on the authorities and the members of the profession who neglect a duty that is of such vital concern to the State and humanity. These facts emphasize the necessity of the enactment of legislation requiring compulsory prophylaxis against ophthalmia neonatorum and placing the supervisory control and licensing of midwives in the Boards of Health in order that this scourge may, if possible, be stamped out.

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A PLEA FOR PATIENCE DURING THE FIRST STAGE OF LABOR.*

By JAMES E. PATRICK, M. D., Farmville, N. C.

In presenting this paper, no attempt will be made at any innovation on this subject. So much has been said on the pathology of pregnancy, its complications and sequelæ—puerperal eclampsia, operative interference, etc.,—that the writer is constrained to look upon the brighter side of this subject, the *physiological* side; if you please.

It seems to be conceded that the medical man has jurisdiction over this cavity under consideration, as long as he keeps out pathological conditions, though it must be granted this is dangerous territory over which to hold dispute.

Labor may be fitly set to a drama of three acts:

First Act consists in laying the plot, anticipating the appearance of the star and the ovation tendered him in the second act—it having been about two hundred and eighty days since the first "ovation" given in this drama.

Second Act is one of more strenuous action, introducing brilliant plays, and it may be some intrigue necessary; ending with the announcement of the star, as he is ushered in, past narrow prison walls and out by way of the superior and inferior straits. Upon his debut he

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is "encored" for a solo, to which he usually responds.

Third Act is only an after-glow of lesser interest followed by the last drop of the curtain. A well-laid plot with good staging is the secret of success in the play. It is likewise essential in this first act to a successful termination of this initial drama of life, in which each of us has once been the star.

The first stage of labor is too often regarded with indifference or unconcern, because the attendant has so little to do but watch and wait. In a normal case of confinement, watching and waiting is the principal business, though oftimes the hardest to do. In most cases no assistance is necessary and meddlesome interference is too often indulged in, in the interest of the accoucheur. An eminent author and obstetrician of one of the Philadelphia hospitals, says: "A physician's duty is one mainly of inaction and non-interference. * * * It is well, therefore, to recollect that nature alone in the majority of cases, with very little artificial aid, is capable of terminating safely the birth of the child; but at the same time, it should not be forgotten that at any moment a dangerous complication may arise which must be immediately recognized and promptly dealt with." Again, from our own Southland, we hear one of equal eminence and frankness, a medical university professor, in a paper on this subject, say, "A normal case really needs no physician; the only need for him is to detect early any complications or abnormalities which may be present, and treat them at the proper time and in the proper way. If this is always done, the maternal and fetal mortality will be practically nil."

When called to attend a case of labor, the first thing is to determine whether labor has actually begun or not. This is not always as easy as some authors would have you believe. Do not jump at a conclusion here. The "show" which is usually considered infallible as an external sign is sometimes seen several hours, or even days before the cervical canal is obliterated and dilatation advances with recurring pains. The most reliable sign is found by vaginal examination, the obliteration of the cervical canal and dilatation of the os. Cases are reported, however, of finding the os dilated several inches and membranes bulging into the vagina, which remained unchanged while patient walked about the house several days before pains returned.

Having found labor actually begun, and having made diagnosis of presentation, the anatomy of the parts, the elasticity or rigidity of the cervix, all the while noting the character and frequency of the pains, let us now observe the results upon the advancing part. In the meantime the question is asked, "How long will it be?" This cannot be answered safely without a good loophole in your reply. History of former confinements is not of much value though usually so considered. A good stereotype answer is, "That depends upon the pains and how well the patient uses them or yields to them." An attendant should never leave a patient long when in doubt of the course of labor; *never* when in doubt of presentation! We have heard how "Dr. John Doe" left, saying he would return in plenty time, but the baby was born before he was hardly out of sight. When, however, you can assure yourself that your services will not be needed for a given time, do not sit by the patient or hang around indefinitely. Your presence adds anxiety and concern to the woman, who is wondering what you will do next, whereas, nothing you do relieves her. Set time for your return and assure her that you will not be needed before that, and proceed to get a nap or make other calls.

Parturition is a *physiological,* a *natural process.* The best skill of the attendant, perhaps, lies in his knowledge of what *is* nature, and which way she is leading in a given case. This can be much more easily recognized in the second stage than in the first, but its importance lies in early recognition and treatment. The duty of the accoucheur is more than that of a surgeon awaiting the opportunity to begin an operation. The tactful attendant is ever mindful of the mental condition of his patient as well as the material surroundings. His easy, confident, but sympathetic demeanor often proves his best sedative. Never allow your patient to think you are in a hurry. She feels as never before, probably, that her life is in your hands. What ingrate can fail to see the confidence and deep gratitude of the newly delivered mother?

It is not the purpose of this paper to overlook or decry the importance of prompt and speedy action on the part of the attendant

whenever conditions demand it. But let us not be too ready to interfere when only minor assistance is indicated. Gynecologists are busy doing repairs, hysterectomies, etc., which are the results primarily of a hurrying, nervous, busy, attendant who could not wait. We may sometimes assist dilatation with the fingers when the cervix is low enough to reach well. Instrumental dilatation, the various types of dilating bags, cervical incisions, etc., should be resorted to only as conditions demand it. Let bag of waters complete the dilatation if you can. *Never give ergot in the first stage!* Its effects are too uncertain and short-lived. Quinine, ten to twenty grains, by mouth or double the quantity per rectum, is indicated to stimulate weak and ineffective, long-continued pains. The writer has never seen any alarming hemorrhages from its use. We are too often tempted to use ecbolic remedies and hasten a process for which nature demands time and patience—the gradual dilatation of the cervix. The importance of these precautions against cervical lacerations, is emphasized by the discussions before the Society upon the subject of cancer. When it is remembered that the most important predisposing cause of carcinoma of the cervix is laceration, how important it is that we guard every avenue of approach of this insidious foe.

The most frequent cause of spasm of the cervix is general neurotic condition of patient. Edges of cervix are found rigid and thin. This is found especially in multiparæ as the result of previous laceration or cervical inflammation. Again, this condition is observed in women who conceive late in life. These cases demand sedatives, medicinally and psychologically as well, sometimes. Give chloral hydrate, ten grains every hour as indicated. But we are learning to depend less upon drugs for specific action, and learning there is something in suggestion—even to the medical man. Some one has said, "Surgery is more an art than a science, but medicine is more a science than an art." However near the truth this may be, we do recognize there is much of art in the practice of obstetrics.

The question of waiting in a given case of labor is influenced too often by the fact that compensation is not always commensurate with the time employed. This is unfortunate, indeed, but it does not excuse a man in a hurry, but who has license to subject his young patient to risks which may cost her months or years of ill health or invalidism. If we accept a case of confinement, let us be true to the grave responsibilities incident, and not excuse ourselves on the ground that she has a trifling husband, or that the pay is doubtful. If we could have the assurance from our patients that the servant gave his lord in the sacred parable on forbearance, no doubt it would be less irksome to wait when, sometimes "Duty seems a load." Let us hope to hear from these helpless patients, "Have patience with me, and I will pay thee all."

THE CAUSE AND TREATMENT OF OTITIS MEDIA.*

By JAMES L. KENT, M. D., Lynchburg, Va.

The scope of this paper will be limited to the causes and treatment of only those forms of Otitis Media most frequently encountered by the general practitioner, viz.: acute, with and without discharge; and chronic, with discharge.

Causes.—The channels of infection are the Eustachian tubes, the tympanic membrane, the blood current, the lymphatic system, and the petro-squamous and other fissures.

I believe the middle ear is oftener infected through the Eustachian tubes than through all the other channels combined. Being only a little over an inch in length, funnel shaped, with their mouths opening into the middle outer walls of the naso-pharynx and protected only by delicate transverse folds of mucous membrane, infective micro-organisms find entrance easy, especially during forcible blowing of the nose. Children are especialy prone to infection through this channel because the tubes at birth are only about half an inch long, the orifices and calibers nearly as large as in adult life, are straight and have no angle at the isthmus, are nearly horizontal (while in the adult their mouths are nearly half an inch lower than the tympanic openings), and the mouth of the tube in the child at term is on a level or below the plane of the hard palate.

The tympanic membrane may be the channel of entrance by recent or old perforations.

The blood current may be the channel in certain profound general infections, such as septicemia and severe scarlatina, the streptococcus

*Read before Lynchburg Medical Society, March 7, 1910.

being found in the middle ear or the discharge from it.

A score or more of distinct germs have been found in discharging ears, but nearly all of them are harmless, and I shall mention only three.

The *pneumococcus* is the most frequently found, but is not very virulent, the infection often subsiding with few symptoms.

The *streptococcus pyogenes* is frequently found and is the most virulent. Some noted otologists advise *immediate* operation on the mastoid when this germ is found, for the severity of symptoms and rapidity of invasion are much greater than with any other infection.

The next most virulent is the *diplococcus meningitidis intercellularis,* but, fortunately, it is not often present.

The lodgment and retention of pathogenic micro-organisms in the middle ear is greatly favored by the exanthemata, acute "colds in the head," and hypertrophy of lymphoid tissue in the naso-pharynx, especialy in Rosenmuller's fossæ. A comparatively small amount of hypertrophied tissue there will endanger the ears more than an abundance of adenoids remote from the openings of the tubes, as it produces passive congestion and interferes with the drainage from them. Of the exanthemata, scarlet fever and measles are those most frequently complicated by otitic inflammation, especialy in winter and spring. More than four per cent. of all cases of scarlet fever have involvement of one or both ears, and the involvement is bi-lateral in over half of these cases. Statistics collected in New York showed that of 5,316 deaf mutes 572—or more than 10 per cent.—the deafness dated from scarlet fever; other statistics show that 12 per cent. of all deaf mutism is caused by it. The per cent. found by different observers varies from 7 to 21.

Some observers have found otitis media as a frequent complication of typhoid fever, claiming that about 12 per cent. of the cases have it, and advise systematic douching of the ears of all these patients with normal salt solution at or above 110 F., after the second week of the disease, when otitic complications are most apt to show themselves.

No doubt, many cases of typhoid have otitic complications, which are never suspected. One observer (Stuckey) reports finding mastoid involvement and pus in the middle ears in seven autopsies on typhoid victims, where there had been absolutely no symptoms calling attention to the ears. We may often fail to diagnose these troubles ante-mortem.

Measles has otitic involvement in nearly all cases, but the infection in these cases, unless mixed with some other micro-organism, is mild, as a rule, and the exudation is rapidly absorbed without perforation of the drum and without injury to the hearing in the large majority of cases.

Epidemic influenza, with marked coryza, may be classed as one of the frequent predisposing causes on account of the excessive naso-pharyngeal congestion blocking the mouths of the tubes. The symptoms and course of otitis media following "grip" are very much like those of a streptococcic infection, very violent and rapid. Diphtheria, tuberculosis, syphilis, pertussis, and "the gouty diathesis" may at times be the predisposing or even exciting cause of otitis media; but of all external causes, taking colds producing coryza is by far the most frequent. Many children who have frequent attacks of earache and are otherwise in seeming good health are often found to have sufficient adenoid vegetations to obstruct the natural drainage from the tubes, and after this obstruction is removed, are free from further earache.

The eruption of certain teeth, the six year molars and the wisdom, and disease of the teeth, are often productive of inflammation of middle ear.

Chronic suppuration of the middle ear is usually due to neglect or failure in attempts to cure the acute affection. It is often perpetuated by lowered vitality or the presence of masses of adenoids.

Treatment of Acute Otitis Media.—Nearly all earache occurring in children under ten years of age is due to adenoid congestion; therefore, measures for the cure of this condition, or its removal, are especially important. No age is too young for removal when indicated. If it should recur, remove it again and don't feel that your first operation was a failure, for the child has had temporary benefit at least, and probably would have been much worse off without it.

For the relief of pain opium may be used at first for a short time, but don't use it long, as you may mask the symptoms and thus endanger the life of the patient. A good deal

of good comes from dropping some very bland antiseptic solution into the noses of these little patients while they lie on the back and allowing it to trickle down over the naso-pharynx and spraying their noses with mild oily solutions containing some non-irritating antiseptic, giving a brisk laxative, and keeping them in bed and at an even temperature. *Irrigate* their ears with sterile normal salt solution frequently and use it *as hot as they can bear it. Avoid oily solutions in the ear,* for oils have no special antiphlogistic property and make it almost impossible to cleanse or anesthetize the drum after their use. Incorporate any anodyne you care to use in glycerine or alcohol—the former being the better because it has a slight tendency to increase exosmosis of the serous effusion from the middle ear. I sometimes use a mixture containing atrop. sulph. gr. j, morph. sulph. gr. ij, in 10 per cent. sol. cocaine hyd. 3j., warm and drop m, v-vij into the ear; or, if I can watch the effect myself, I often use a mixture of a 20 per cent. solution of cocaine in alcohol with a 20 per cent. solution of B. eucaine in aniline oil and apply a few drops on cotton to the drum. This is as nearly an anesthetic to the drum as anything I have ever used; in fact, I often use it in preparing the drum for paracentesis, and there is very little pain in the operation after its use. Some apply a 15 per cent. solution of ichthyol to the drum and claim that it relieves earache promptly, but I have had no experience with it. External heat often give relief in uncomplicated cases.

Examine the ear under good illumination, and if there is the least suspicion of bulging, make a free incision of the drum along its posterior margin. If this is done under surgical asepsis and with precision no possible harm will be done and, in the large majority of cases, you will give prompt relief and remove a great menace from your patient. If after incision only a serous fluid appears, do not irrigate the ear, but dry it out with sterile cotton and plug the canal lightly with the same; if pus appears irrigate gently with a sterile akaline or 1-8000 bichloride solution every two or three hours.

In acute congestions, as in coryza, potas. bromid. gr. i-v every hour is helpful. After measles the post-nasal glandular tissue is especially enlarged and good will come from the use of syr. hydriodic acid 3j t. i. d. in those cases in which a thin watery discharge continues in spite of good drainage and careful attention. The opening in the drum will close too soon in most cases and you must prevent this by inserting a probe daily until the discharge has ceased. Do all you can to relieve nasal and post-nasal congestion.

Chronicity can nearly always be prevented if the drum is properly incised in the first twenty-four or thirty-six hours of the attack. Chronic otorrhea is often considered too lightly, even by some intelligent phyhicians—a mere inconvenience instead of a menace to life. All persistent purulent discharges from the ears ought to be regarded seriously and the physician ought not to rest until the same is cured. Often the general practitioner does not realize the danger which lurks in these innocent looking ears. Patients have told me that physicians have told them that they ought not to try to stop the running ear, for if they did "the corruption would go to the brain and kill them." It is just as safe to leave an appendix full of pus in the abdomen as to leave alone an ear that is discharging a large quantity of pus or has had a continuous discharge for a long time, even if small in quantity; 82 per cent. of all brain abscesses are of otitic origin.

Often the continuance of discharge is due to improper drainage, the perforation being small or located high up on the drum. In such cases, enlarge the opening, and if it is high up, incise the drum down to the lowest point, so that gravity will assist in the drainage. I do not think irrigation is so effective in stopping discharge as dry cleaning, for micro-organisms thrive better in dampness. Some authors advise ossiculectomy, but others of as great experience advise against it, saying you will eventually have to do a radical operation in more than 50 per cent. of the same cases; then it is a most delicate operation, fraught with considerable danger. Recently some brilliant results have been reported from the use of sulphide of calcium internally, and I shall give it a faithful trial. The Stacke or Swartze-Stacke or Zaufall operations give the best results in these chronic cases and should be resorted to, as a last resort, where a discharge has resisted simpler methods faithfully carried out for six months or more.

The American Medical Editors' Association
Will meet in St. Louis, June 4-6, 1910.

Analyses, Selections, Etc.

The Significance of Leucorrhoea.

In a paper on the above subject read by Augustin H. Goelet, M. D., of New York, before the Richmond meeting of the Tri-State Medical Association of the Carolinas and Virginia, February 15, 1910, the author said the neglect of leucorrhœa is a grave and, unfortunately, a common error, that is unpardonable because it involves the health, happiness and often the life of the patient. The character and source of a vaginal discharge should always be investigated by the physician who encounters it and the patient should never be dismissed with a prescription for a vaginal wash to be used unintelligently and indifferently because the true significance of the discharge is not appreciated.

Education of patients to an appreciation of the possible significance of leucorrhœa in *childhood before puberty, in young women before marriage; in married women, and in women past the menopause* is particularly insisted upon.

The danger to women in after life of disregarding or neglecting a vulvo-vaginitis of childhood that may be derived from infection of a serious character is forcibly emphasized, as is also the necessity of investigating the leucorrhœa of young girls after puberty and before marriage. These latter are the cases most often neglected, because of false modesty on the part of both mother and daughter, shared only too often by the physician. It too often happens that the unsuspecting mother and physician permit neglect of a vulvo-vaginitis of gonorrhœal origin because a proper examination is not insisted upon.

The leucorrhœa of recently married women, as is pointed out, is often the result of infection from the husband who has a gleet or chronic prostatitis at the time of marriage, and, if it is neglected, may lead to serious consequences. It is unfortunate that leucorrhœa of married women is so often regarded only as a necessary inconvenience. Its possible character and the probable outcome if disregarded should be impressed upon every woman.

The danger to the young wife is so great that special examination of the prospective husband who has once had gonorrhœa should always be insisted upon before marriage is consented to.

Vaginal discharge in women past the menopause is often disregarded because of the belief that women at this period of life are exempt from disease of the generative apparatus.

The most frequent causes of vaginal discharge at this period are senile endometritis and cancer of the uterus. Both of these conditions are important—senile endometritis, because it leads to constant ill health or chronic invalidism and premature aging; and cancer, because it endangers the life of the patient. *Hence, at no period of a woman's life is investigation of a vaginal discharge more important than after the menopause.*

It is unfortunate that the term leucorrhœa is so indiscriminately used to designate any and all forms of discharge from the female genitalia. It is so frequently given as a symptom by the patient who consults the physician that it has come to be regarded as natural, and its actual character is seldom noted.

Proceedings of Societies, Etc.

Medical Examining Board of Virginia.

Commissions having been issued to each of the lately nominated members of the Medical Examining Board of Virginia, to serve for a period of four years, a call for meeting at Lynchburg, Va., on April 1, 1910, was duly held for the purposes of organization.

The meeting was called to order by Dr. R. W. Martin, of Lynchburg, and Dr. E. T. Brady, of Abingdon, was chosen Chairman.

On roll call, the following members responded to their names: Drs. Herbert Old, Norfolk; John G. Rennie, Petersburg; H. W. Dew, Lynchburg; R. B. James, Danville; P. W. Boyd, Winchester; R. M. Slaughter, Theological Seminary; O. C. Wright, Jarratt; R. S. Martin, Stuart, and Harry S. Corey, Richmond.

The former officers of the Board were unanimously elected to fill their respective offices for the next four years, viz.: Dr. R. W. Martin, President; Dr. E. T. Brady, Vice-President; and Dr. R. S. Martin, Secretary-Treasurer.

The President, on assuming the chair, reappointed Drs. E. T. Brady, R. M. Slaughter

and Herbert Old, as the Executive Committee.

Dr. E. T. Brady moved that a Committee be appointed to revise the By-Laws, and report at the next meeting of the Board; carried. Drs. Brady, James and Rennie were appointed.

Dr. James moved that the arranging of the different sections be assigned to the Executive Committee of the Board, and their recommendations be reported to the President. Adopted.

Reciprocity with the State of Vermont with reference to the recognition of certificates was entered into from this date.

Dr. James moved that the Board accept the note of Dr. Robb Porter in payment of reciprocity fee. Adopted.

Dr. R. S. Martin moved that a Committee be appointed to draft resolutions suitable to the memory of Dr. M. R. Allen, and cause the same to be recorded on the minutes of the Board, with instructions that a copy be also furnished his family; carried. Drs. Corey, Wright and Dew were appointed.

Dr. R. S. Martin moved that Drs. Warinner and Corey, of the Richmond District, be appointed a Committee to secure a room in which to hold the usual June examinations; adopted.

The Secretary-Treasurer was directed to pay the railroad expenses of each member of the Board in attendance on this organization meeting.

Dr. James moved that the Secretary-Treasurer find out the cost of a safe in which to keep the books and papers of the Board and report at the next meeting; adopted.

Board adjourned to meet in the hall of the Medical College of Virginia, June 21-24, 1910.

Editorial.

University College of Medicine, Richmond, to be Rebuilt.

The buildings, laboratories and equipments of the University College of Medicine were destroyed by fire last January. At once the nearly 300 students were advised to select other institutions in which to complete their courses of instruction to graduation. But the loyalty of the student body was most remarkable—not a single one expressing a preference to go elsewhere until after it could be decided as to the possibility of continuing their curricula in the college of their matriculation.

Before the fire, suggestions had been made as to the union of the three medical schools of the State into one grand University of Medicine. The suggestions, however, never materialized. After the fire, propositions were exchanged as to the amalgamation of the Medical College of Virginia and the University College of Medicine—the latter proposing to surrender its charter and operate under that of the former. After some delay, early in April, the University College of Medicine presented as its ultimatum that while it would surrender its title, and accept that of the Medical College of Virginia, that, "first, the Board of Visitors of the Medical College of Virginia be first re-organized so as to give the University College of Medicine one-half of the membership thereof; and, secondly, that the University College of Medicine be given one-half the membership of the Committee on Faculty, to be appointed by the re-organized Board." While it is understood that a number of the Faculty and of the Broad of Visitors of the Medical College of Virginia favored acceptance, the ultimatum of the University College of Medicine for equal rights on the Board and in the Faculty, was rejected.

Such being the conclusion of these negotiations, a conjoint meeting of the resident trustees and of the Faculty of the University College of Medicine was called April 16, 1910. The facts were all reviewed, and, after encouraging statements had been made as to financial provisions, it was unanimously determined to rebuild the structure destroyed by fire, re-equip the laboratories, etc., and to continue the operations of the University College of Medicine as a distinct medical educational institution as in former years.

Architects will begin work on plans at once, while the lot at the corner of Clay and Twelfth Streets, Richmond, adjoining the Virginia Hospital is being cleared of bricks, etc. So that now it is an assured fact that the work which has been so creditably carried on for years by this institution will be continued, with better facilities, larger equipments and greater enthusiasm than ever. It is expected that everything will be in readiness for the opening of a thoroughly equipped and up-to-date college at the fall term.

The rebuilding of the structure and the proper equipment of its laboratories, etc., will cost about $100,000. The loss to the city of about 300 medical students in one year could

not have been materially less than $100,000, estimating that the total cost of a student annually is not far from $400 each. In addition, the financial influences which so many students yearly bring to the city would add very materially to the aggregate. So that retention of this body of students in the city ought to lead some of the generous-hearted, public-spirited citizens to make liberal contributions to the rebuilding of the University College of Medicine, and let it continue the phenomenal success that has been its good fortune in the past.

A National Health Department.

The most important health measure presented to the Federal Congress within a generation is now pending before the Senate. This provides the organization of a Federal Health Department, as a co-ordinate branch of the Executive Department of the Government. Introduced by Senator Owen, of Oklahoma, on its own initiative, it is of epoch-making importance in its relation to the health of the American people.

Under the present organization of the Executive Departments health work is sadly divided. The War, the Navy, the Treasury, and the Agricultural Departments and the Department of Commerce and Labor are all now engaged in some form of health work; but there is much needless duplication of effort and incidentally much waste in the present arrangement. All of this would be avoided and effective Federal supervision of national health would be made possible, if an effective National Health Department were organized.

Every motive of good policy prompts the passage of Senator Owen's bill. The Government conserves natural resources—coal fields and forests, plant life and animal life—and why should it not effectually conserve human life? Millions are annually spent in pensions for those who have been injured in Federal service. Why should not as much be done to prevent the injury of those who make possible the Government?

We do not view with concern the effect of such a department either on the rights of the States or on the operation of State health authorities. The Constitution vests quarantine regulation in the Federal Government, and the good sense of the nation upholds it. Nothing will be lost by making this power effective. So far as the operation of State health authorities is concerned, the establishment of a Federal Department would, as a matter of fact, greatly increase their usefulness and increase their efficiency. It does not supercede State Health Departments, but will assist them and bring about a better co-operation and co-ordination.

Whether viewed in its broadest light as a proper function of government in an enlightened age, or as a simple business investment for the future, a health department is demanded. We trust it will be organized and we trust that the people as well as the medical profession of Virginia will not be wanting in support of the bill.

Dr. Rawley W. Martin.

The many friends of Dr. Rawley W. Martin, of Lynchburg, Va., will be pleased at the compliment paid him at the last regular meeting of the Lynchburg Medical Society, when that society, as a token of their affection and esteem, presented him with a silver loving cup. We voice the sentiments of the profession at large in saying no doctor more richly deserved this honor, and in wishing for him in words of the presentation speech, that this cup may "be always full to overflowing with the good things of this life."

Army Medical Corps Examination.

The Surgeon-General of the Army announces that preliminary examination of applicants for appointment as First Lieutenant in the Army Medical Corps will be held on July 18, 1910, at various army posts throughout the country. There are at present 123 vacancies in the Medical Corps of the Army. Applicants shall be citizens of the United States, and between the ages of 22 and 30.

For information concerning further requirements, apply to the "Surgeon-General, U. S. Army, Washington, D. C."

Medical Interne, Government Hospital for the Insane.

The United States Civil Service Commission, Washington, D. C., announces an examination on June 15, 1910, to secure eligibles from whom to make certification to fill at least two vacancies in this position at the hospital in Washington. Applicants should be graduated

from reputable medical colleges, not more than two years prior to the date of the examination.

The American Proctologic Society

Will hold its twelfth annual meeting in St. Louis, Mo., June 6-7, 1910, under the presidency of Dr. Dwight H. Murray, of Syracuse, N. Y. Though limited in membership this Society enrolls the names of doctors of national reputation, many of whom have promised interesting papers for this meeting. Dr. Lewis H. Adler, Jr., of 1610 Arch St., Philadelphia, Pa., is the efficient Secretary of this Society.

American Academy of Medicine.

Dr. Charles McIntire, Easton, Pa., Secretary of the Academy, has issued an Outline Provisional Program of the thirty-fifth annual meeting, to be held at Hotel Jefferson, St. Louis, Mo., June 4-6, 1910. Dr. James H. McBride, of Pasadena, California, will preside at this meeting.

Dr. Henry P. Frost,

Well known as an authority on mental diseases, and for many years prominently identified with New York State hospitals, has recently been elected superintendent of the Boston State Hospital. He graduated from the University of Maryland in 1889, and is a son of Dr. Henry Frost, of Marshall, Virginia.

The Association of Surgeons of the Norfolk and Western Railway

Will convene in their third annual session at Norfolk, Va., May 4, 1910, with headquarters at the Lynnhaven Hotel. For further information, address the Secretary, Dr. T. M. Baird, Crewe, Va.; or, Dr. S. S. Halderman, the President, at Portsmouth, Ohio.

The Bennett Medical College of Chicago

Begins a short advertisement in this issue. Under its new administration it begins its career as a college of the regular medical profession, and with the ability and eminence of those in charge of its affairs, it promises to become an institution of wide usefulness.

The American Orthopedic Association.

In connection with the meeting of this Association an interesting feature will be a series of clinics to be held at various hospitals in Baltimore, May 2d, the day prior to the convening of the Association for its regular meeting in Washington City.

Dr. Robert A. Davis

Has been promoted to position of first assistant at Eastern State Hospital, to succeed Dr. Rea Parker, resigned. The position of second assistant will be filled at the May meeting of the Hospital Board.

Beriberi.

An outbreak of this disease occurred among the colored convicts at a camp about ten miles outside of Charleston, S. C., during March. Several deaths were reported.

Obituary Record.

Dr. Jefferson Kinney.

At a special meeting of the Roanoke Academy of Medicine the following resolutions were passed:

WHEREAS, in the mysterious dispensation of Providence, Dr. Jefferson Kinney, a charter member of this society, has been removed from our ranks, and it is our desire to testify to our deep appreciation of his life among us and of our sorrow at his departure: now, therefore, be it

Resolved, That we, the fellows of the Roanoke Academy of Medicine, in special meeting assembled, do make this record of our affection and respect for our departed member and brother. Unfailing in his zeal for the noblest aims and purposes of his chosen profession, untiring in his work for the relief of human suffering and affliction, unwavering in his efforts for the maintenance of the highest standards of professional conduct, he combined in himself the traits which go to make up the ideal physician.

Such a man will be sadly missed in all his relations. We join our sympathies with the community which has lost a valuable citizen; with his patients who have lost a capable and conscientious counsellor, and we especially share in a common bereavement with his family, whose sorrow cannot be measured by others.

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Original Communications.

DIAGNOSTIC SIGNIFICANCE OF DYSPEPSIA.*

By SAMUEL LILE, M. D., Lynchburg, Va.

In selecting this subject I am not unmindful of the fact that I am treading on old and well worn soil, yet the past few years have developed some facts regarding it which are exceedingly interesting, especially concerning *the chronic form*, which will be the chief subject of my remarks.

We all know that acute attacks of indigestion come on quickly, and, as a rule, are easily relieved by a good dose of calomel or an emetic—if it follows closely after eating—followed by some stomachic tonic for a few days. This is almost the universal rule, unless there be some complication, and in such case the distress will usually point out the fact, and often point out the location as well.

How many of us see cases of chronic dyspepsia who come to our offices from time to time until they and we, too, are just worn out with the various stuff we have been prescribing without any benefit. After this has gone on for a longer or shorter time the patient becomes a wanderer, and goes from doctor to doctor, with the same old result: then the field of patent medicines is resorted to, until all hope of recovery has been abandoned. Neighbors may then take up the case and dole out their experiences with this and that doctor, or this and that medicine, until finally some friend will tell of a medicine that cures every case, but failure is met on every hand. Finally the patient returns to us and we look, think and wonder what to do. Then a new beginning is made and some proprietary stuff that has not been tried before is given with nothing more than a vague hope that it will do some good. Often these cases go all the rounds mentioned and no doctor has made a physical examination of the patient, but all have relied on the statements of the patient, both for diagnosis and for formulating a course of treatment, when often such an examination would have made things perfectly clear. If not clear as to diagnosis and treatment, matters would have been cleared up so as to have enabled the doctor to say there is something mysterious here and requires close attention or perhaps consultation.

With these troubles, as with all connected with our work, *diagnosis is the sine-qua-non to success.*

Dyspepsia has been a stumbling block to both physicians and surgeons for ages, and to-day the symptomatology is not definitely settled.

The earlier surgical operations for dyspepsia as often resulted in harm as good, and I might say oftener. The surgeon continued to operate, however, studying the living pathology as they did so, and it began to be observed that a large number of chronic dyspeptics would develop an acute appendicitis, colangitis, colecystitis, or gall stone attack, necessitating some operative procedure, and it was noted that after the operation the dyspepsia would disappear and the patient was cured.

This put observers on their guard, and such men as John B. Murphy, John B. Deaver, Ochsner, Richardson, the Mayo Brothers, and many others began systematic study of chronic dyspeptics, and have developed the facts that nearly all cases of this class have either cancer of the stomach, ulcer of the stomach and duodenum, gall bladder disease, chronic appendicitis, chronic pancreatitis, tuberculosis, Bright's disease, or pernicious anemia.

Dr. Graham, one of the chief diagnosticians to the Mayo Brothers, says that the chronic stomach and duodenal ulcer is the purest type of chronic dyspepsia, while Moynahan says that the most positive and definite symptom of

*Read before the South Piedmont Medical Society, Danville, Va., April 19, 1910.

gall bladder disease is chronic dyspepsia.

Bright's disease, tuberculosis, and pernicious anemia as causes of dyspepsia we will not deal with, as they usually attract attention sufficient in themselves to demand early and prompt action.

Duodenal and Gastric Ulcer.—Cases which come to operation of this class, or, if not to operation, to the physician, will always give a history of having suffered for years with periods of freedom from any trouble for longer or shorter intervals, but always returning, usually a little more severely each time, and always, too, showing a tendency to grow worse. In the early stages of these attacks it is especially noticeable that taking food relieves the pain, but within two to four hours thereafter pain, distress, gas, sour eructations, nausea and perhaps vomiting recur, to be again relieved by taking food. The specially peculiar thing is not the periodicity, nor the chronicity, but the regularity with which the pain occurs with the above symptoms, so soon as the stomach is empty or almost empty and the readiness with which all symptoms disappear as soon as food is taken. This regularity is not found in any other lesion about the stomach. Later these symptoms change, when food will not only not relieve, but will produce or aggravate the condition. Patients then become emaciated, either because of lack of appetite, or they will not take food for fear of all the distress produced thereby.

In the early stage of ulcer there is usually good appetite with standard nutrition, but pain comes on from two to four hours after taking food, just while the stomach is emptying itself or just as it gets empty. The heartier the meal the longer is the sense of relief to stomach.

There will be some gas and sour eructations, occasionally vomiting of a sour, bitter liquid, an excess of hydrochloric acid, and the stomach is usually normal as to position and size. These patients present themselves for relief from the pains of indigestion, which they say come on after meals, but really the pain comes before the meal.

The second stage begins some months or years later, several intermissions having occurred with remissions, each recurrence showing increase in severity.

The sense of relief following a meal is somewhat less marked; pain is severe and appears sooner after taking food. There is almost a constant feeling of distress about the stomach; gas, sour eructations, vomiting of sour, bitter acrid fluid, at times mixed with food occurs. Vomiting, as a rule, gives a sense of relief. Loss of flesh takes place during the attack, but is readily regained thereafter.

During the third stage desire for food may be present, but there is fear of food on account of the pain which is produced thereby, together with the gas, vomiting, sour eructations, bloating, the sour, burning stomach which follows. The relief from taking food has grown very short, constipation will have become marked and obstinate, obstructive symptoms, loss of flesh, and even cachexia may be present. The stomach may now be dilated and prolapsed, hydrochloric acid normal, lessened, or entirely absent. Blood may be found in any stage at a test meal, but is more certainly so in this, the third stage. So imperceptibly does this stage merge into the fourth or last stage, which is most frequently cancer, that it is extremely difficult to mark any distinctive stage.

Localization of pain in neither cancer nor ulcer is definite but less so in the latter.

Vomiting is always a prominent symptom in cancer and the vomitus often contains particles of undigested food that may have been taken hours or even days before, though there is as yet no pyloric obstruction.

Vomiting in cancer is usually accompanied with less retching than in ulcer, but blood is more frequently seen, but bile is rarely seen.

Of the non-surgical diseases producing chronic dyspepsia, syphilis, tuberculosis, Bright's disease, and pernicious anemia, must be diagnosed separately from those causes under discussion.

Cancer of the Stomach.—The pain and general distress of cancer of the stomach is rarely if ever, relieved by taking food, but is either produced or increased thereby. Cancer of the stomach is not always accompanied with pain, but there is that uncontrollable vomiting and hematemesis, feeling of uneasiness, and usually absence of hydrochloric acid in the gastric juice.

We have all been impressed, in taking the histories of cancerous patients (I refer to cancer of the stomach), with the fact that there was in nearly every instance a pre-cancerous stage, covering a period of years, with times

when apparently all symptoms had disappeared and the patient would feel that probably the disease had been arrested, but sooner or later there would be a recurrence with perhaps symptoms manifesting a greater degree of discomfort than in any preceding attack. In other words, the pre-cancerous history will usually be that of chronic ulcer of the stomach and duodenum. Such cases as these, should they come to operation, will surely prove that the pre-cancerous stage was that of chronic ulcer. Chronic ulcer, then, being the first stage, and the malignant feature thereof developing later, shows that chronic ulcer is fertile soil for the development of malignant growths.

Even those cases with rather short pre-cancerous histories, which come to operation, will show that the malignancy was preceded by a non-malignant ulcer.

When cancer has definitely fastened itself upon the stomach the course is surely and steadily downward, with rare intervals of even temporary relief. Loss of weight, strength, energy, accompanied by weakness, weariness, a dull, sickening, indescribable pain, with a facial expression common to all sooner or later, and once seen is never forgotten; these together with languor and emaciation, leave but few other conditions to be considered than cancer.

There are three types of histories to be found in cancerous conditions about the stomach and duodenum. The first class includes those which give long periods of suffering with dyspepsia, with remissions and acute exacerbations —in other words, those giving histories of chronic gastric and duodenal ulcer.

The second class includes those in which the initial symptoms were more or less severe, but a period of apparent cure followed, varying in time from a few months to several years, before any suspicion of malignancy crept in.

The third class includes those in which the acute symptoms attack the patient suddenly when in apparently perfect health and vigor. This latter class or group remains to be proven to have been preceded by any symptoms of chronic ulcer; at any rate, if there has been any such history the interval has been so long that the patient will in no way connect the two conditions.

Chronic appendicitis will often show symptoms referable to the stomach only, which are often termed neurotic, but, if the case is closely and carefully examined, the true condition will be found. In these cases there is a noticeable absence of regularity in the attacks as compared with the chronic peptic ulcer cases, but, as a rule, they are more severe if we exclude the perforating ulcer. The symptoms are oftener attributed to taking food than in ulcer or gall bladder diseases. Often such attacks are attributed to violent exercise.

An acute exacerbation in chronic appendicitis will oftener force the sufferer to seek the bed than will any other form of supposed dyspeptic trouble, unless perhaps in case of hemorrhage or perforation. Partaking of food will often give pain at varying times from its ingestion, but never relieves it. Gas passng through the bowel will frequently remind the patient of the appendix.

Pain in chronic appendicitis is not an ever present symptom, is not so acute as that of gall stone colic, but lasts longer, nor does it reach the intensity of the peptic ulcer. There is less pain, as a rule, when the bowels have acted freely.

This pain is often referred to the epigrastrium and will frequently mislead the doctor and may cause him to suspect peptic ulcer, or some gall bladder trouble. There is not the clear-cut repetition and definition of ulcer or gall bladder attacks, nor is the location so definitely fixed. Very acute pain in the appendiceal region always points to an *acute* appendicitis.

Gall bladder diseases have their own peculiar types of gastric disturbances, and they vary from very mild to very severe. When mild they may and often are considered very lightly by both patient and physician. There is a class of cases in which the pain is not acute, but dull, aching and prolonged in the epigastric region, over the right hypochondrium, or entire liver area.

Such patients, as with all chronic dyspeptics, may have their pain produced or increased by eating, motion or exertion, and deep inspiration will always elicit pain, and they all have periods of freedom from discomfort, which sooner or later return and generally with renewed energy and force, for they are all akin in the one thing of growing progressively worse.

The acute gallstone attack comes suddenly, which we all recognize from the lancinating pain produced thereby, and from this class

come a majority of the cases for operation at the present time. This pain comes suddenly, is excruciating, is located in the epigastrium, radiating to the right costal margin, sometimes to the left, through to the scapula; there is a feeling of distress due to the pressure upward on the diaphgram, nausea and vomiting, and after suffering for a longer or shorter time, there comes almost sudden relief, as was the beginning of the pain. Relief comes, and wonderful relief it is, too, but the attacks are sure to return.

Sudden onset, followed by sudden relief without any cause or treatment, is almost typically peculiar to gall-stone attacks. These attacks come irregularly, night or day, fasting or not, but are often diagnosed indigestion or perhaps gastralgia.

In the chronic type of gall bladder diseases the symptoms are nearly all referable to the stomach, and simulate more nearly those of chronic gastric ulcer than anything else; in fact, this similarity is often so marked that it is impossible to differentiate before opening the abdomen.

Jaundice, the one symptom that is oftenest looked for in these gall bladder troubles, is found in only 14 per cent. of the cases; therefore, we should never err in treating the cases by waiting for jaundice, nor fail to make the diagnosis for lack of it. Moynahan says that the most prevalent symptom of gall bladder disease is chronic indigestion. Jaundice will rarely occur in gall bladder disease if the common duct is patulent. The cystic duct may be completely closed, yet there will be no jaundice if the common duct is not either obstructed by a stone or by pressure from without or within.

Acute pancreatitis is ushered in by sudden violent pain, with nausea and vomiting, soon to be followed by more or less shock. The pain and vomiting are almost constant, and the termination comes quickly if not relieved by drainage.

Chronic pancreatitis may show all the symptoms described under the above headings, and at the same time be accompanied by an uncontrolable diarrhœa.

Surgical invasion of the upper abdominal cavity is gradually enabling us to replace theory with facts, and the past fallacious purely cliuical observations are giving way to the demonstrable actual conditions shown by living pathology. One of the most striking of these facts is that three-fourths of all gastric and duodenal ulcers are situated in the duodenum.

Conclusion—All the diseases of which I have spoken are first manifested by some form of dyspepsia, and later show themselves as chronic types of dyspepsia.

All those cases of chronic dyspepsia not relieved by medicinal means, except for short intervals, are due to one of the foregoing causes, and when carefully studied will so be determined.

Some surgical measure is absolutely necessary for permanent relief.

Such surgical procedures are not attended with much danger, and they give permanent relief and enable the sufferers to feel that after all life is worth living.

The whole substance of the matter then resolves itself down to one of diagnosis; once that is clear the treatment suggests itself.

FORMATION AND DUTIES OF LOCAL BOARDS OF HEALTH.

By HAROLD B. WOOD, M. D., Philadelphia, Pa.

In growing communities it soon becomes appreciated that a cohesion for social protection is of material advantage. This is shown in the early establishment of police protection. Police activity is for defending society against the attacks of lawlessness and against the dangers of disease. Considered from a commercial or social basis, the granting of police powers is one of the most important of statuatory enactments; the promotion of commercialism is largely dependent upon the safeguarding of the public health. To develop the highest civilization, commercial progression and social happiness, the community must guard itself not alone from the pestilence which may be introduced from a foreign shore but from the diseases which are communicable within the colony, which result from the disregard of those already afflicted or which arise because of faulty methods of living and from reckless industrialism. Prospective residents and visitors, commercial houses and industries patronize those towns which are known to be safe. No community is too small but that great benefit will accrue from adopting a centralized authority entrusted with the duties of pre-

serving the public health. A local board of health therefore becomes a necessity.

A board of health of a town would advisedly be composed of few persons. Authority for existence is created by a state legislature. In the absence of a municipal bureau or official the powers of a health board should be vested in the authority of a county or state officer. The active head of a local board should be a recognized authority, having the approval of the county and state medical societies. Qualifications to hold office should consist of technical ability, energy and special training in the various branches of activity over which control obtains, with the passage of a special examination in sanitary science. A term of previous residentship within the county or state should not be obligatory. Friendship, favor and political activity enthused into official appointments have a marked effect in deteriorating professional usefulness. If the tenure of office be uncertain and the remuneration small it may be impossible to obtain trained men willing and able to accept appointment.

Statutes and regulations without provisions for their enforcement are of little service. Laws are made only for the lawless and towards them force may occasionally be necessary. It it not the desire of a health board to create unnecessary friction, and moral suasion and instruction frequently carry sufficient force. Antagonism is to be avoided.

When however it becomes necessary to protect the public through court activity enforcement may be accomplished by punishment after a judicial decision. Violations of statuatory provisions, maintenance of nuisances and offences against quarantine are misdemeanors, indictable offences, answerable in a criminal court. But violations of city ordinances or of specific regulations or rules of a board of health are not necessarily crimes in some states. Specific enforcement by the local board may be obtained by warrant by injunction, by giving notice and hearing—the last usually being legally necessary to enforce orders against nuisances. The state legislature usually grants the local board of health powers to give notice and hearing, to summarily abate nuisances, to issue warrants and subpoenas, to compel witnesses, to administer oaths and to prescribe and impose penalties for violations of a failure to comply with its orders and regulations.

Certain other powers of a local board are of necessity granted by legislature, whereas others are enactments of the municipality. If the power be one for controlling conditions which may etxend beyond the boundaries of the city such powers must come by an act of legislature. Such statutes would grant power to collect vital statistics, to compel the reporting of births, marriages and deaths, to prevent the spread of communicable diseases of man and animals, to provide for the safety of persons in factories, schools and public institutions, to maintain the purity of food products and drugs, to protect inland water-ways, to quarantine against foreign ports, to define, declare and abate nuisances, to secure sanitary conditions in tenements and workshops, to require vaccination, to prevent the free distribution of substances detrimental to health and morals, to fix and establish fines and penalties, to employ assistants, fix salaries and provide for necessary expenses.

The municipality, with statuatory power to execute, enforce and prosecute for violations of the state mandates and of its local regulations, may formulate various ordinances or orders without specific state action in each case. Such would include the abatement of local nuisances, enforcement of local standards for foods, against the establishment of noxious or dangerous trades, control of the local water supply, disposal of sewage, garbage and rubbish, local orders for the control of diseases, licensing of various tradespeople, inspection of various establishments, and fixing penalties for the interference of the different activities of the board of health.

The functions of a board of health may be classified as follows:

1. Control of the transmissible diseases.
2. Abatement of nuisances.
3. Investigation of matters affecting the public health.
4. Collection of health statistics.
5. Education in hygiene.

For the proper control of transmissible diseases early and complete reports should be insisted upon. The state decides which are the reportable diseases. Such diseases should be reported within twelve hours of the first diagnosis, giving the name, age, address, the schools attended or the name and address of any business which pertains to the handling of dairy products or other food supplies, and in the pres-

ence of tuberculosis, of the handling of clothing. The probable source of contagion should be included. Should a subsequent diagnosis be contrary to that reported such should be made known that exact records may be kept. Such information is to enable the health officer to quickly locate the case, to probably trace its origin and to know in what school, factory or other location secondary cases are apt to arise, that future spread may be quickly and effectively prevented.

Municipal rules for the advised or enforced quarantine within the home or in a city hospital, rules for placarding, for disinfection of apartments and effects, and rules for attendance at funerals should be enforced. Vaccination, being the only effective prophylactic against smallpox, should be rigidly enforced when variola is present in a community, rules being made for the examination, vaccination and certification of people in all schools homes and public institutions. Schools are the principal distributing stations of the contagious diseases of children; therefore, the institution of medical inspection of school children will do much toward suppressing epidemics, as frequent careful examinations of all scholars will reveal incipient cases or the presence of apparently healthy individuals who are carriers of contagion. School inspection properly belongs under the control of the health bureau. In cities with a large poor population a corps of visiting nurses should be supplied. By the removal of cases of the dangerous communicable diseases to an isolation hospital much better control of an epidemic is obtained. After recovery it is advisable and safe to exclude for a while the individual from schools and libraries and from places where milk is handled.

Nuisances are all conditions which are dangerous to human health or life; hence their abatement, when deemed necessary for the public good, becomes of supreme importance. Right of abatement being granted by legislature, the city defines specific nuisances by whom and in what manner the abatement shall come, and the penalties.

In the abatement of nuisances the health officers eliminate dangerous or prejudicial conditions arising from insanitation of strects, unoccupied land, public buildings, schools, stations, public conveyances, city hospitals, asylums and jails, and in places where food supplies are prepared or handled, as in slaughter houses and dairies. Cognizance is taken of the public water supplies, disposal of sewage, disposal of garbage, ashes, filth and rubbish, dangerous and noxious trades, and dangerous diseases of animals that the public health be not jeopardized. The drainage of swampy land and the protection of the public against mosquitoes, flies, rats and stray cats and dogs not only tends to preserve health and comfort, but to increase the value of realty. Within public buildings or where numbers of people tend to collect or congregate the health board should have power to define and enforce satisfactory plumbing, ventilation, cleanliness, water supply and sewerage. Plans or descriptions of plumbing, ventilation and sewerage system for all buildings should be submitted for inspection and approval. The control over the cleaning of privies and cesspools, and the elimination of privies and cesspools where judged to be prejudicial should be enforced. The location for the storage or deposit of all animal or vegetable substances which are apt to decompose or otherwise to become noxious or dangerous should be designated by the board of health. The board should exert influence for the practical avoidance of industrial dangers. The control of needless noise, offensive smoke and odors, noxious plants, dangerous spitting, dangerous animals and the location of various offensive trades should advisedly be included in city ordinances. The storage of dairy or other food supplies in unwholesome places and the keeping of milk cows under unhealthy surroundings should be prohibited.

To protect her own water supply from pollution and to prevent herself polluting another's supply, a city should receive State authority. It should be granted authority to close dangerous private supplies of whatever source, to control vended waters, to prevent the cutting of ice from sewage polluted waters, to prevent the sale of dangerous foods and to prevent the use for certain domestic purposes of water from any polluted source. It should be made a misdemeanor by statute to offer for sale any unwholesome, adulterated or mishandled foods unless a written declaration of such condition be made to the buyer. The cleanliness and healthfulness of food supply houses, public eat-

ing places and conveyances should be insisted upon. No conveyances for food supplies, milk, garbage, ashes or night-soil should be adopted if contrary to or without securing the approval of the board of health.

The quality of the dairy products and the necessary hygiene of the dairies should be defined and enforced.

To more effectively avoid nuisances arising, it is advisable to grant licenses to the venders of foods and to the makers or handlers of certain products and commodities. The license should be granted only after an inspection or other examination satisfies the health board of the absence of danger. The city fixes the price of licenses and the time and conditions for which they are granted. Among those who may with profit be controlled by license are dairymen, butchers, bakers, hucksters, garbage collectors, refuse and night-soil collectors, dead animal collectors, barbers, physicians, midwives, dentists, undertakers, the keepers of lying-in-hospitals, and the proprietors of sweat shops, tenements and lodging houses. Unlicensed persons engaging in such occupations should be prosecuted. Baby farms and public adoptions should be prohibited.

The investigation of conditions affecting the public health and the constant effort to overcome the prejudicial conditions should be the effort of every board of health. Such work, however, is not possible unless the public appreciates the importance, and, by necessary grants, gives its assistance. Such work denotes civic progress—without it, retrogression. For the work laboratory equipment is necessary. The public should appreciate that satisfactory and effective work can only be accomplished when those to whom it is entrusted receive sufficient remuneration so that their entire time can be devoted to the work, and without it being necessary for them to use other means to eke out a living. The town fixes the salary of its health officers and should make that commensurate with the good to be obtained by preserving the health, remembering that such work indirectly advances the commercial advantages of the municipality. An emergency fund should be created, else from a sudden outbreak great havoc may be wrought before the necessary means are obtained for its suppression. The successful handling of an outbreak is of equal importance to its prevention. Attempts should be made to control the carrier cases, which are the most dangerous sources of infection.

The ideal health activity is reached, not when complete statistical records are obtained, but when the causes of the various conditions are diligently sought and effective means used to lower the morbidity rate. To accomplish such ends complete statistics are necessary—statistics which are reliable, unbiased and correctly interpreted.

Medical practitioners should recognize the advantage to be gained by assisting in the collecting of statistics. Not only will the danger from disease in all families be lessened, but, through the gathering of complete statistics and the proper use of them, a town becomes better known, progresses and increases in size. More trades people, and hence more residents, popularize the locality, and the financial basis of the community becomes more steadfast. Also, the larger the city becomes the more assistance can the practitioner obtain from an enlarging laboratory through its increasing facilities to assist in diagnoses and treatments. Statistical reports should be submitted at regular intervals to the State department of health.

A most effective means for the health board to accomplish good is through its educational influences. The object of all work in preventive medicine is to teach people how to avoid disease. They should be shown the causative influences affecting the spread of tuberculosis, and other transmissible diseases; they should be taught the prevention of infant mortality, the economic loss resulting from industrial diseases and accidents, the value of sanitation, the great values of vaccines and sera, and be shown that a protection or control over others is a protective to themselves. The instruction of children is of no less importance than that of adults. Public meetings, the publication of popularly written articles which reach the public for whom they are intended, and exhibits and demonstrations are all methods of reaping great benefit with little outlay. The co-operation of the large employers and the confidence and respect of the general public are essential requirements for effective work in the preservation of the public health.

5038 *Pine Street.*

PRELIMINARY REPORT OF A NEW OPERATION FOR PROLAPSUS UTERI.*

By CHARLES S. VENABLE, M. D., San Antonio, Texas.

I will not attempt a rehash of all the procedures that have been advanced and are being done to correct the condition known as "prolapsus uteri," but will classify all under three main heads, as pertaining to their different ways to accomplish the same results—that is, to replace and maintain in its proper position a displaced uterus. We will grant, for the sake of brevity, that necessary infra-pelvic repair has been done. These are, first, fixation of the uterus to the abdominal wall; second, such manipulation, both extra- and intra-abdominally, of the round ligaments so as to maintain the position required; third, manipulation of the sacro-uterine ligament to obtain this end.

I will pass over the first as obsolete, or rapidly becoming so, condemning it as a non-surgical mechanical makeshift. If there is sufficient relaxation of intra-pelvic structures to allow enough displacement of the uterus to warrant surgical intervention, there is enough to warrant at least an endeavor to repair those relaxed tissues that permit of this condition. Concerning the second of these procedures much is to be said. What is known as Alexander's, or better, Edebol's modification of Alexander's operation is a limited extra-abdominal procedure. Ferguson was first to use the round ligaments intra-abdominally when he cut them off and sutured the stump to the anterior abdominal wall. Then came Wiley's and Dudley's and Mann's procedures of shortening them intra-abdominally and Gilliam modified Ferguson's operation by looping the round ligaments and bringing this loop through the deep fascia and there fastening them in this position. And then Baldy and Webster in turn fastened the round ligaments behind the uterus with the view of bringing the fundus forward, but these are dependent on sufficient support otherwise obtained.

On this follows Simpson's modification, which is the most surgical procedure dealing with this method of replacement, and does not, as does Gilliam's, leave space for possible production of intra-abdominal hernia.

I will pass over the procedures of others with the round ligaments which are too numerous to mention. The one object of all is the same—that is to use the round ligament as a cord, and by pulling on the one end or the other or looping it up or tying it in the middle the uterus is suspended in mid-pelvis, having no other support, front, back, sides or bottom.

I maintain, with others, that the round ligaments are not intended to support the weight but to maintain the position by drawing the fundus in front of an imaginary line in order that intra-abdominal pressure may act from behind instead of from above. This is true of the original position of the uterus and use of the round ligaments, but after the parts have relaxed as in multipara and the uterus become heavier, the broad ligaments and the sacro-uterine ligaments relaxed, can by simply pulling the fundus beyond the midline so alter intra-abdominal pressure as to overcome all of these factors? Does repair of the perineum, colporrhaphy, etc., so restore these parts that nature's balance through intra-abdominal pressure will maintain that automatic equilibrium which we seek? So even Simpson's modification of Gilliam's operation must be inadequate in cases except in which a light uterus with no intra- or infra-pelvic relaxation is to be coped with.

This brings us to the third procedure: That in which we utilize, or rather recognize, the slack in the sacro-uterine ligament. Noble says that repair or shortening of these ligaments is not sufficient, but to it, must be added one of the procedures dealing with the round ligament (or a ventro-fixation done) in order to place and maintain the fundus in the proper position. In other words, recognize more than one ligament or muscle or group of ligaments or muscles as at fault, and that the repair must be complete. So far, so good; but no mention has been made of the broad ligaments which share in this relaxation, and which brings me to a preliminary report of my effort to meet this part of nature's requirement of us who undertake to repair in our inadequate way her wonderful mechanism. I take for my indications those that have been given you by other authors in recommending processes of repair and describe the technic of the operation before entering an anatomical argument in its favor.

*Read before the Bexar County (Texas) Medical Society.

Repairs to the perineum, anterior vaginal wall, cervix, etc., are attended to. A medium incision sufficiently long to admit easy handling of the uterus and adnexa is made; examination of the pelvic contents and any diseased condition present dealt with as indicated. The uterus is then lifted to the lower angle of the abdominal wound, the fundus grasped with the tenaculum forceps and held by an assistant. The thumb and fore finger of the operator are now passed in front of the broad ligaments on either side, respectively, and approximated behind the uterus.

The points of the broad ligament easiest approximated are brought together, or if sufficient relaxation does not present for them to meet, a corresponding point on either side is brought to a point on the postero-lateral aspect of the body of the uterus, exerting sufficient tension to see that if so held the uterine position will be as desired, and these are selected as the sites for the introduction of a suture, which is as follows:

The broad ligament on the right side is then grasped between the thumb and fore finger of the operator and the ovarian vessel located.

A half curved, round needle with chromic gut is then passed from before back through the broad ligament just below the ovarian vessels and carried behind the uterus, entering the wall on the postero-lateral aspect as the fundus rounds off to the body and emerges at a similar point on the opposite side; the broad ligament of the left side is now grasped in the same manner, and the needle passed from behind forward below the ovarian vessels, through the left broad ligament. The operator, still holding the left broad ligament, now passes the needle from before backward through the lowest point that it has been ascertained will meet or correspond with a similar point on the opposite side. The needle is then entered into the lateral posterior aspect of the uterus on a line parallel with the suture line above, and emerged at a similar point on the opposite side. The right broad ligament is entered at a point corresponding with point of exit for the left broad ligament. The suture is then tightened, and if laid correctly the uterus will be swung forward; the tension on the round ligaments producing an anti version—the sacro-uterine ligaments are made taut and the posterior fornix elevated. If this is the case the hold is relaxed and the posterior surface of the uterus between the points of exit and entrance of the ligature is denuded, as are the portions of broad ligaments that are to come in contact with these denuded surfaces. The suture is again tightened and tied as a mattress suture; the approximated edges of the broad ligament are sutured with continuous cat-gut in a French needle. The relaxation of the round ligaments may be so great that while this procedure supports the uterus these are not sufficiently tightened by it, when it will be advisable to add Baldy's procedure or a modification thereof, by fasteuing the round ligaments behind the fundus with sufficient tension to maintain an anti-version as well as the support. I have had this to do in one case of my series, and the fundus is held beyond the midline by the round ligaments on which are exerted no undue tension.

The position of the tubes is changed from horizontal to one curved down, backward and slightly inward; the ovaries lie on either side just beyond the latero-posterior aspect of the uterus. The round ligaments are tightened, but their support is that of a guy rope in the original direction and of that plane and not that of a cord from which a weight is suspended. The great factor of intra-abdominal pressure is brought back into play in its greatest capacity and the fundus is held beyond the midline by the round ligaments on which there has been placed no greater stress than by nature originally.

The blood supply is in no way interferred with, as is neither the passage of an ovum in the Fallopian tube in its changed position. The prolapsus of one or both ovaries which I believe to be as great a factor, if not in many instances greater, in inducing reflex disturbance, as uterine displacement, is corrected, and which in far too many cases, through oversight or ignorance, is neglected. Their new position in no way interferes with their functions or their nutrition.

Time is too short to state the effects of pregnancy, but if I may be permitted to forecast, I do not believe any deleterious effect will be induced by this procedure. I have one case whose physician reports has passed her sixth month of pregnancy with no evidence of disturbance and who had had two miscarriages in fourteen months after the birth of her last baby.

I shall appreciate very much a report from

any operator who follows this procedure, as we may in a later report profit by the experience of the many and ascertain the short comings and end results to be expected.

SYMPTOMS OF PUERPERAL SEPSIS.*

By K. M. TALIAFERRO, M. D., Lynchburg, Va.

Puerperal sepsis is a far more frequent disease than is commonly believed, as comparatively few cases are reported, either through failure to recognize the true pathological condition, or the patient has been entrusted to the hands of an untrained midwife.

When a case which has recently been delivered of a child, or one that has been in protracted labor, develops a fever of 100.5° we should fear sepsis, and bend every energy in arriving at a correct diagnosis by all the clinical and microscopical methods at our disposal. Accuracy and due haste may be the largest factors in deciding the final outcome. It is far too often that we regard too lightly the symptoms before us, perhaps attributing them to some transient cause, as we frequently witness the development of a little fever, which quickly disappears after a purgative or within a short time. Again, we are apt to view the case as typhoid, malaria or other disease.

Puerperal sepsis presents a wide range and complexity of symptoms according to the kind and virulence of the infective agent, point of infection and the patient's vital resistance.

The most common lesion is an endometritis, but unfortunately the extensions with its resulting complications are almost as varied as the organs of the body. Therefore, in addition to the symptoms in common there are those indicative of the specific infection and of the anatomical parts affected.

The two principal types are the *putrid* and the *pyogenic or septic.*

The putrid type may appear at any time within the first ten days, but usually the case has progressed smoothly until the third or fourth day, when the patient has loss of appetite, furred tongue, general sense of discomfort, headache, chilliness, elevation of temperature, increased pulse rate and diminution of milk secretion; or we may find her condition boldly expressing itself by a chill, high fever, rapid pulse, which is usually consistent with the degree of fever, pain and tenderness in lower abdomen. The lochia at times are diminished, but more frequently increased and bloody and purulent in character with a very offensive odor, and perhaps showing bubbles of gas. Examination reveals a congested vagina, an enlarged tender uterus and often necrotic remains of placental tissue. After the removal of this offending material we anticipate an early subsidence of the symptoms and a gradual recovery.

Pyogenic or Septic Type.—In this we have a condition second to none in the worry with which it afflicts the physician in charge or its probabilities of harm to the patient. In certain uncomplicated cases the symptoms are largely those of the putrid type, but, in most cases its continued severity and relentless course establishes a strong line of demarcation. There are all degrees of virulence, from the slight endometritis that undergoes resolution rapidly to the deadly septicemia, which may be fatal in twenty-four hours from its initial symptom.

The most constant lesion in this, as in the above type, is endometritis. The incipiency of an attack may be as late as the tenth day after delivery, occasionally later. Usually, however, the patient is apparently pursuing a normal course, until the third or fourth day, when there is a feeling of malaise, headache, insomnia, restlessness with either a gradual rise of fever, or more frequently there are one or more chills, sudden development of high fever, acceleration of pulse rate—perhaps far in excess to fever present—and pain in lower abdominal region.

On digital examination the patient complains of tenderness, and there is a nodulous, enlarged and boggy uterus. On visual inspection there appears an inflamed, ulcerated or diphtheroid condition of the vagina. The lochial discharge in the pure septic form—especially the streptococcic—is usually diminished or absent, and not of foul odor, unless there be putrid material in the uterine cavity, mixed infection, or one of the bacillus coli communis.

When the infection is mild and does not extend beyond the endometrium, and especially if the patient is of strong resistance, we may see her after a few days showing a gradual improvement, but in a large proportion of cases, instead of this pleasing termination, we are forced to witness a speedy advance to com-

*Read before the South Piedmont Medical Association at Danville, Va., April 19, 1910.

plicating lesions, such as metritis, salpingitis, ovaritis, pelvic cellulitis or peritonitis that give in addition, to the above enumerated symptoms, those of the specific organs implicated.

In the severer forms of this variety the patient has a pinched look of genuine illness stamped upon her every expression, and so often feels the touch of impending danger and anxiously enquires of her condition, as frequently the mind is not obscured but pathetically clear.

The infection may spread through the Fallopian tubes—especially the gonorrheal—but usually travels directly through the lymphatics, and when once on the peritoneal side of the uterine wall we have the added symptoms of nausea, vomiting, increased pain, shock and constipation—unless there should be septic diarrhœa. Abdominal distention and tenderness, as a rule, are strongly marked, but there are cases, particularly rapid and severe, in which the abdomen is soft and not painful on pressure. Again, in others there is a failure of resistance marked by a low temperature, though the great acceleration of the pulse beats time to rapid progress of the enemy. Bimanual examination may be quite unsatisfactory when the case has proceeded to a cellulitis or peritonitis, as exudates thrown out may cause such a mass of œdema and hardness that to outline any particular object in the pelvic cavity is impossible, unless after a lapse of time when resolution or a localized abscess has taken place. The cervix may feel as if encased in wood. If the exudates are in contact with the bladder we have more or less irritation of that organ, or if they surround the rectum constipation is expected to be of obstinate character, frequently rendering bowel evacuation almost impossible.

If the patient withstands the first onslaught, resolution may take place or the infection become localized as a pus cavity, occasionally emptying itself into one of the hollow viscera or externally, the patient slowly recovering.

On the other hand, the patient may die within the first ten days, or a localized collection of pus may break into the peritoneal cavity, causing a fatal secondary peritonitis.

There is an especially virulent form, called *septicœmia,* usually of streptococcic origin, in which the bacteria and the toxines enter the blood current producing death before the disease has had time to fasten itself upon any one organ. The toxicity is so great that it may prove fatal in a few hours.

There are cases of late development, known as pyemia, generally running an irregular hectic course. In these cases the venous clots become infected, then dislodged, producing symptoms which are of serious import, according to the malignancy of the infection and the anatomical organ in which the infected thrombi are deposited. These may cause a pneumonia, an arthritis, or, in the second week, we may be confronted with phlegmasia alba dolens, with its symptoms of swollen feet and limb, redness, pain and hard tender femoral vein, which is usually not dangerous to life, though quite distressing with a prolonged existence.

I have not taken up the specific germ infections with their relative impress, but the microscope is a most potent ally in prognosis and in giving a clearer indication to treatment.

INFLAMMATION OF THE FRONTAL SINUS.*

By A. D. WOOD, M. D., Bluefield, W. Va.

The large frontal sinuses, separated by only thin plates of bone from the brain posteriorly, and the orbital cavity below, are connected with the general nasal cavity by the infundibula or naso-frontal ducts. The naso-frontal duct is a long narrow groove deeply situated under the middle turbinate bone, which furnishes an outlet for the frontal sinus as well as, the maxillary and anterior ethmoidal cells.

The thin walls of the sinus, the deep situation of the naso-frontal duct, and the proximity of the brain and orbital cavity make diseases of the frontal sinus of more or less gravity and apprehension. The entire bony cavity with but a small outlet, causes the acute inflammations of this sinus to be attended with intense suffering.

In this paper I have nothing new to offer. I only wish to report a few cases I have treated during the last two years.

Case I.—Mr. L. D., age 19, of Lurich, Va., was brought to me March 31, 1910, suffering with pain over the left eye, described by the patient as being "over and back of the eye-ball," and being at times of a very excruciating character. The patient and his family physician thought the trouble was one of the eyes. The disease dated from the middle of January, and

*Read before the Mercer County (W. Va.) Medical Society, April 9, 1910.

had been more or less continuous. On examination, the eyes were found healthy with normal vision. The region over the left eye, and below the supra-orbital ridge was painful to pressure. On inspecting the left nasal chamber, pus was seen dripping down the post-nasal space into the pharynx. The middle turbinate bone was diseased and enlarged. Under cocaine and adrenalin, I removed the anterior third of the middle turbinate, and the granulating tissue underneath, blocking the infundibulum; passed a frontal sinus probe into the sinus, and after freeing the opening to the sinus, a canula was introduced and a considerable quantity of foul-smelling pus was washed away. A solution of menthol and camphor in oil was directed to be sprayed in the nose at frequent intervals. A 5 per cent. solution of ichthyol in glycerine was given with directions to be used on cotton to the cut surfaces in the nose, as also codeine and phenacetine when needed for pain. This patient has been doing nicely since the operation.

Case II.—Mr. C. H. W., age 21, a dray driver, was referred to me on April 2, 1910, suffering with pain of an intense nature, over the left eye. This was the second attack of the trouble. The first occurred in the middle of the winter, and lasted nearly two weeks. He had been suffering with the second attack ten days when he came to see me, describing his suffering as very severe. The region over the frontal sinus and below the supra-orbital ridge was painful to pressure. The opthalmoscope showed the eyes to be normal.

On inspecting the nose, the left middle turbinate bone was seen to be greatly swollen, and almost filled the upper part of the nasal chamber. I removed the anterior third of the middle turbinate, and tissue obstructing the naso-frontal duct, passed a frontal sinus probe followed by a canula, and washed out the cavity. Since the operation this patient has been greatly relieved. The sinus is discharging freely, and he is doing satisfactorily. A spray of menthol and camphor was given; also a five per cent. solution of ichthyol in glycerine.

Case III.—Mr. L. H. J., age 33, a sewing-machine agent, came to me on July 22, 1908, suffering with pain in the right side of his head, and over the right eye. He said he had had trouble or cold in the head for six months. There was pain on pressure over the right eye and beneath the supra-orbital ridge. On inspecting the nose, the middle turbinate bone on the right side was seen to be a suppurating mass, greatly enlarged, and almost completely filling the right nasal chambers. I removed about two-thirds of this mass with a snare, and with cutting forceps removed the obstructions to the naso-frontal duct, prescribed a solution of menthol and camphor in oil to be sprayed in the nose. As this patient had an active syphilis, I prescribed mercury internally.

August 3d, Mr. J. reported that his head was almost relieved since the operation.

Case IV.—On February 3d, N. J. L., a teamster, employed at a local livery, was referred to me. For about one week he had been suffering with pain over the right eye, which at times was agonizing in character. He had been under treatment by his family physician with but temporary relief. The region over the right eye was painful to pressure. Pus was seen in the right side of the nose; its origin could not be satisfactorily located on account of the swelling of the middle turbinate. I removed the anterior third of the middle turbinate, and passed a canula into the frontal sinus. A large quantity of foul-smelling pus was washed away. Since this operation the pain has been very slight, compared to the intense suffering of the week before. The discharge has been profuse since the introduction of the canula. A solution of menthol and camphor in oil was prescribed as a nasal spray, and five per cent. solution of ichthyol in glycerine to be used in the nose on cotton.

Case V.—D. T. R., age 26, a teamster by trade, came to me on January 14, 1910, suffering with severe pain over the right eye. He had been suffering with pain over both eyes for about one month. This followed an attack of la grippe. The patient is a syphilitic. Before coming to me he had had an operation on the left side of the nose. On inspection, the anterior half of the middle turbinate on the right side of the nose was seen to be greatly inflamed and of such size as to completely block the upper part of the right nasal chamber. Some pus was seen in the right side, but the outlet was obstructed, which prevented its escape. I removed a large part of the middle turbinate on the right side, and prescribed five per cent. solution of ichthyol in glycerine to be applied on cotton in the nose. Codeine and phenacetine

were given to relieve the pain, and when this failed, a dose of morphine was to be taken internally. Mercury was given internally. After the removal of the anterior third of the middle turbinate, the right side of the nose discharged profusely. This patient was coming to my office from the 14th to the 31st of January. He continued to have some pain occasionally and slight headache, but the nose was discharging freely. In my office, I made applications of five per cent. solution of ichthyol, and occasionally of a solution of adrenalin. I understand this patient has gotten along very well since his last visit to my office.

Cace VI.—Mrs. S. W. J., age 32, came to see me on Aug. 21, 1908, on account of a chronic discharge from the right side of the nose. This trouble began about ten years ago. On inspection, creamy pus was seen coming from under the front of the middle turbinate. I removed the anterior third of the middle turbinate with a wire snare and Miles cutting forceps, and prescribed menthol and camphor as a spray. I have not seen this patient since, but learn she is practically cured.

Case VII.—Mrs. H. R., age 28, was referred to me on December 1, 1909, suffering with a severe pain over the right eye, which had been more or less continuous, and growing worse for the last two weeks, in spite of the usual anodyne preparations prescribed by her family physician. There was tenderness on pressure over the right frontal sinus, and beneath the supra-orbital ridge over the right eye. On inspecting the nose, thick cream-yellow pus was seen issuing from under the anterior end of the middle turbinate bone. The patient described the pain as excruciating. The opthalmoscope showed the right optic nerve to be a little grayish in color compared with the left. Vision in the right eye was only 12-200, while the left was normal, or 20-20.

On the first visit to my office, I prescribed a solution of adrenalin in oil as a spray, and codeine and phenacetine for the pain. On the second day, after a hypodermic of morphine, and with applications of cocaine and adrenalin in the nose, I removed the anterior third of the middle turbinate on the right side. On December 3d, after removing more of the bone obstructing the frontal sinus duct, I passed a probe into the frontal sinus.

December 4th, passed a frontal sinus canula and washed out the sinus with a solution of boric acid. A large quantity of thick foul-smelling pus came away. Suffering has been intense, but greatly relieved after the irrigation.

December 10, patient has not been seen since the 4th, but I heard from her over the phone. She had been feeling much better for several days. Thick creamy pus was seen flowing from the frontal sinus duct. Patient not seen again until December 18th. She reported that she had been feeling very well.

January 1st, patient again came for treatment. She said she had had a severe cold, or la grippe, and that her head had been paining her over the right eye again severely.

January 3d, passed frontal sinus canula, and irrigated sinus. The discharge the following night was profuse.

January 7th, passed frontal sinus probe. Prescribed five per cent. solution of ichthyol in glycerine to be used in the nose on pledgets of cotton for one-half hour at a time.

Remarks.—Hypertrophies of the turbinate bones, especially the middle turbinate, deflection of the nasal septum, and deep, narrow nasal chambers all more or less predispose to disease of this cavity by interfering with the free drainage of the nose. Acute and chronic rhinitis often cause frontal sinus diseases by extension of the inflammation of the nose into this cavity. La grippe ranks first as a cause of acute frontal sinusitis. Among the causes of the chronic variety, are repeated attacks of acute sinusitis with faulty drainage. Syphilis causes a large number of chronic cases, and tuberculosis some. In the few cases I have reported, two were known to be syphilitics, and were promptly placed on mercury internally.

Most of the cases seen by the rhinologist will require operative interference—certainly all of the chronic, and most of the acute variety. Of first importance, in the treatment of these affections, is free drainage. This can usually be obtained by the intra-nasal method, more or less described in connection with the cases above cited. Those not benefited or relieved by this method, will need to have the sinus opened, curetted and drained externally.

The Lynchburg (Va.) Medical Society

Has appointed a committee to arrange for the re-organization of the Health Department of that city, according to the most modern methods.

UNCINARIASIS—REPORT OF CASES, WITH OBSERVATIONS ON ITS SPREAD AND ERADICATION.*

By W. A. BRUMFIELD, M. D., Brookneal, Va.

In regard to the first part of the title of this paper I merely wish to report that since March 9, 1910, I have made positive microscopic diagnosis of forty-one cases of this disease and have treated twenty-one cases. Of these, there were twenty-seven males and fourteen females. Thirty-nine of them were white and only two negroes. The ages were from 6 to 60 years. The symptoms were the usual ones, and have been so frequently and fully described in the medical literature of the last few years that I shall not enumerate them.

Most of my cases were severe ones, but there were a few of them in whom there were practically no symptoms of this disease, and for every case in whom I have confirmed the diagnosis with the microscope there are dozens in whom the symptoms are sufficiently marked that microscopic diagnosis is not necessary, and who have never heard of this disease. In some sections the men, women and children in nearly every family are infected, in many cases to such an extent that only a glance is necessary to make a diagnosis.

On the 11th instant I attended the burial of a member of a prominent Halifax family. There were seventy-five or eighty people present and of them I counted twenty-five in whom the symptoms of uncinariasis were so pronounced that I would consider the use of the microscope for diagnosis a waste of time. There was one in whom I was enough interested to ask for specimen for microscopic examination, and this proved positive. The symptoms were not marked enough in this case for me to count it as one of the twenty-five, and I suspect that if a microscopic examination were made in the fifty or sixty not counted that the disease would have been found in 30 or 40 per cent. of them. In no case where I have made a thorough examination have I failed to find it in more than one member of an infected family. Nine of my cases who are taking treatment, are members of one family—the father, mother and seven children being infected. My investigations have extended from fifteen to twenty miles from Brookneal in every direction, and from these facts concerning Pittsylvania, Halifax, Charlotte and Campbell counties, and the report of Mr. J. Alexander Waddell, who made investigations in Franklin and Bedford counties for our Board of Health (reported in *The Virginia Medical Semi-Monthly,* March 11, 1910,) I have no doubt that uncinariasis is the most common disease in the South Piedmont section of Virginia; and every one who has made a broad investigation, says that it is much more common in the Mountain and Tidewater sections than it is in the Piedmont section.

Most of the victims of this disease are infected in childhood, and unless the conditions under which they live are radically changed they are reinfected often enough to remain victims throughout their entire lives. When there was only one infection the parasites have been proven to have remained present in the intestines for four years; and since these four years are generally years of mental and physical development, it is only reasonable to suppose that the whole future of the victim of a single infection is very much injured. I do not doubt that if the physical energy lost from this cause in the section investigated by myself, were used, as it would be were it not for the muscular weakness caused by this disease, the product would be sufficient to pay all the doctors and undertakers' bills for that section; and it is quite certain that the mental energy lost is of still more value.

In his paper read before the Hookworm Conference, held in Atlanta, Ga., Hon. E. E. Rittenhouse, says that it is estimated that two million people in the South have this disease. This estimate is probably too low, but let us accept it. Now, as most of these cases are among the laboring classes—especially farm and factory hands—where men, women and children actually contribute by manual labor to the support of the family, it is certainly a conservative estimate to suppose that one-fourth of these, or 500,000, are, or would be, actual bread winners, and belong to a class of labor that earns not less than $200 per annum. It is also estimated that a sufferer from uncinariasis is incapacitated to the extent of 25 per cent. as an average. Multiplying 500,000 by $50 we get $2,500,000 for the loss expressed in dollars—enough to pay one thousand physicians $2,500 per annum. Stiles also estimates that

*Read before the South Piedmont Medical Society, Danville, Va., April 19, 1910.

owing to the mental inefficiency of the children affected, 30 per cent. of the money spent in attempting to educate them is lost. Add these losses and we have enough to eradicate the disease in ten years.

But how many of these victims would have raised themselves from this class but for this handicap? The question cannot be answered, but many of the richest and most influential men in the United States had no better opportunity from a financial or social standpoint than the average boy of this class, and it is not probable if, while selling papers in New York city, he had been infected with uncinariasis, that Andrew Carnegie would have attained his present financial position. Many of our most prominent and useful men, especially of the South, have risen from this very class since the civil war. The majority of these victims are following the most useful industry in the world, the only *sine qua non* of existence—agriculture—and there would be thousands more in the same pursuit if it were not for this disease. All of you know that most of the cotton mill hands of the South have left the farm and gone to the mill. Investigations in 130 representative cotton mills of the South have shown that one in eight of the employees have this disease so well marked that a microscopic examination is unnecessary to make a diagnosis, and I suspect that it can be proven that the percentage in the new-comers from the country is higher than the total average. Owing to the more arduous manual labor required on the farm they find it impossible to make ends meet and leave it for the mill, there, too, often, to have tuberculosis added to end the bitter fight for existence. This urban movement is pointed to, by protectionists, as a great factor in the present high cost of living, and since uncinariasis has greatly promoted this urban movement, and reduced the production of those left on the farm, it, too, may justly be counted as one of the factors in this high cost which we, of the South, charge up to the tariff.

Let us look, briefly, at conditions in the South after the civil war. Millions had been spent in the prosecution of the war, and millions more had been lost in the slaves. Practically everybody was very poor. The erstwhile wealthy slave-owner now had nothing but hundreds of acres of valueless lands. This land could not, at first, be sold, as there was no money with which to buy; so the sons of the wealthy, with the negroes and former overseer, or peasant class of whites as laborers or renters went to the plow. These sons of the wealthy had had no practical experience as farmers and often failed. The negro attempted nothing but the enjoyment of the freedom which had been so suddenly thrust upon him. The former "po' white folks," accustomed to hard work and extremely economical habits, began to gain. As soon as they could save a little money with which to make a first payment they bought land, and, in many cases, paid for it, and are now our most independent and useful citizens. A great many, however, never bought and many who did were never able to pay for their land, and those are the tenant and, generally, hookworm class to-day. As the negroes left their homes to enjoy their freedom in the cities of of the North and South, this latter class of whites moved into their deserted cabins and, often polluted soil, and, in many cases, infection from these parasites, has prevented them from making the success of, and belonging to, the independent class mentioned above. This exodus of the negro from the country to the city, coal mine, railroad and other public works has continued, and still continues, and all the while—sometimes only a day or two after his exit, a white man moves into his deserted home, becomes infected with his parasites, and soon earns the reputation of being no better than the negro.

But let it not be understood that hookworm disease is confined to the negro and poor or tenant class of whites. Poverty does not cause the disease; neither does wealth render any one immune. This parasite is no respecter of persons, and if a wealthy and most fastidious lady were to send her servant for rich earth with which to fill her flower pots and have a bucket of embryo hookworms brought she would surely become infected. In my own short list of cases more than 10 per cent. of the families represented own their own homes and some of them have snug bank accounts. The poor are more frequently exposed, and, therefore, more frequently infected, but unless steps are taken to stop the spread of the disease infection will become uniform in the rural population of the South, all progress will be stopped, and our future history will be blasted forever.

Now, I have attempted to show something of the prevalence and economic importance of this disease, one of the methods by which it has been, and is still being, introduced into the white race, and that the poverty and ignorance of our tenant class is not due in every case to laziness and lack of thrift, but in many cases is due to infection with this parasite, and that the eradication of it will give them an opportunity, which will be accepted in many instances, to rise to positions of independence and much greater usefulness.

What must be done to eradicate it? Stiles has said that "There is probably no disease known in the medical calendar which is more easily diagnosed, more easily cured, and more easily prevented than hookworm disease." (Hookworm Conference. Reported in *The Journal A. M. A.*, January 29, 1910, page 392.) I think he is mistaken. He forgot, for the moment, the hosts. He also says that some of these patients had rather continue with the disease than to leave off fat bacon for one day to take thymol. "Whom the gods would destroy they first make mad." I have found his latter statement absolutely true, and the former is also true *wherever we can get the opportunity* to make the diagnosis, administer the treatment, and institute the necessary hygienic measures to prevent the recurrence of the disease in the same or another individual. But to do all of these for all of the subjects of this disease would require something like the following measures:

First. Medical missionaries to go out and hunt the cases and beg them to take the treatment free of cost, as the Christian missionaries try to persuade the heathen to accept the Christian religion. These missionaries should be possessors of considerable tact and knowledge of the class of people with whom they would have to deal, and should call on every physician, preacher and teacher in the country and endeavor to enlist their support and co-operation.

Second. A law requiring every one who builds a house for human habitation to construct for use of its occupants, and the protection of them and the community, a privy of a certain specified type or standard of hygienic efficiency. As these worms do not multiply in the bodies of their host this measure alone, if properly carried out, would eradicate the disease in a few years, unless some of the lower animals—the dog, for instance—are also infected and polluting the soil for the infection of the human race. This is a very important phase of the subject. It is well known that the dog and several other of the lower animals can be infected in the laboratory, and if this occurs to a considerable extent in nature it will greatly complicate the problem of eradication and, of course, render it very much more difficult.

Third. Compulsory education. It is distressing how many large families there are in some of our rural districts, no member of which can read, and how many more never read anything but patent medicine advertisements.

The negroes generally are making greater sacrifices to send their children to school than the tenant class of whites, and many who are quite able are doing but little or no better. If it were not for this condition a campaign of education through the newspapers would accomplish much in many matters pertaining to hygiene and health, but as it is it would be practically worthless in the district that I have investigated in regard to hookworm.

Fourth. Sanitary and school inspectors with police authority to see that the last two measures mentioned above are enforced.

Fifth. Adequate appropriations from the State or national government to carry out the above measures. Uncinariasis is a national evil, though almost confined to the South, and since it is so easy to get appropriations from the national government for the study and protection of fish, trees and crops, the study and prevention of the diseases of horses, cattle, sheep and swine, it seems that it might appropriate something to save its citizens, as none of the other things would be of any value without them. We are told that we should never look a gift horse in the mouth, and the people of the whole South should undoubtedly be very thankful to Mr. Rockefeller for his magnificent gift for the treatment and eradication of this disease, for it is better that he tax us and appropriate it to this cause than that it should not be done at all, but the Standard Oil Company has long been accused of dominating the United States Government, to a certain extent at least, and now its head, through this gift and the colossal "Charity Trust" which he proposes to establish for all future time, is assuming the duties of the national government.

After all these measures to eradicate hookworm disease it would probably be necessary to have a law compelling some of its victims to take the treatment, or be isolated until nature produced a cure, as I have heard several fairly intelligent people, on most subjects, say that if they have the disease they hope they will never find it out, and some of them have it.

SURGERY OF THE THORAX AND ITS VISCERA.

By B. M. RICKETTS, M. D., Cincinnati, Ohio.

The subject for consideration is probably first in importance in modern surgery, because of their vital and inaccessible characteristics; frequent injury and disease and because they have been the last of the organs of the trunk to be subjected to the hand of the surgeon. Especially is this true with elective surgery, emergency surgery, more or less limited in its character, having been done from time immemorial. It will not be the province of our effort to deal profoundly with the embryological and minute anatomical structures of the thorax and its viscera; nor will their fundamental physiological aspects be considered. It will, however, be necessary to consider them somewhat grossly from time to time, for a better understanding. To accomplish this it is especially necessary to quote freely from various authors upon the subject of embryology.

The middle portion of the embryo is divided into proto-vertebræ, so that they may be seen on the fifteenth day, but there are no traces of limbs on that day. A sharp bend in the middle of the back is perceptible, but this question has not been determined. About thirty-five pairs of the proto-vertebræ may be seen through the skin on this day. The sharp bend in the back opposite the yolk sac, disappears at the end of the twenty-first day, when the vertebræ become more distinct.

The Wolffian ridges having made their appearance on the twentieth day, two vertebræ are especially distinct at this time, opposite the posterior end of the heart and opposite the allantoic stalk, respectively, and they represent the rudiments of the upper and lower extremities.

On the twenty-seventh day the back becomes straighter and the proto-vertebræ so well defined that the eight cervical, twelve thoracic, five lumbar, five sacral, and five caudal vertebræ with the tail, may be readily distinguished.

The roof of the attachment of the arm may be seen extending from the fifth cervical to the second thoracic verterbra. The Wolffian ridge connecting the arm and leg of each side is still present, but not well defined. The back becomes straighter and the bony elements begin to give the body shape about the forty-second day. The body is formed by the sixtieth day, so that it has assumed human form. The sixth month finds the sterum well developed and becoming ossified.

The thorax is constant throughout animal and insect life, and its comparative study is, therefore, exceedingly interesting. The same principles more or less obtain with all, especially fish, reptiles, birds and mammals, but it is the chest of man to which attention will be directed.

"The hard structures entering into the composition of the thorax vary greatly, as do also their shape and consistency. Comparison of the thoraces of mammals more closely resembling that of man will be considered. In many of the vertebrates there is no partition wall separating the thoracic from the abdominal viscera. Not until those more highly organized, are approached are the structures known as the diaphragm to be found and then they are often very imperfectly developed."

"*The diaphragm* is absent in amphibians and saurians, so that the pleural cavities are lined with peritoneum. Mammals have a diaphragm, but its formation is not understood."

"Organs of respiration are constant in animals and insect life, some, like fish, breathe by gills, some by lungs, and some by both gills and lungs."

"*The normal number of lobes of the lung* varies; some animals have one, while others have more, and the number may vary in each individual. Anomalous numbers of lobes are frequent but it is sometimes difficult to determine such variations. The minute structure of the lung and the number, size and distribution of the bronchi also vary considerably, as does the structure of the alvolæ of man. His is the only one having capillaries on both sides of their walls. There is no known reason why this is so; no doubt it adds greatly to the pro-

cess of repair, necessitated by inflammatory changes. The lung of man is therefore the most highly developed."

Lungs. On the fifteenth day there appears a swelling on the floor of the pharynx, opposite the first, second and third bronchial arches, and along the middle of this swelling runs a longitudinal groove. This groove becomes more distinct on the sixteenth day and its posterior end terminates in a short ovoid pocket, which becomes deeper by the end of the third week and extends backward to the side of the esophagus, independently of it and its posterior end becomes divided into right and left lobes, which afterwards become the lungs proper. The tube leading to them is the trachea, and the slit opening into the groove on the floor of the pharynx is the future glottis. During the fourth week the lungs are growing rapidly on each side of the esophagus and dorsal to the heart. The distal ends become larger and soon divide into lobes, three on the right and two on the left; so that the fifth week finds the main lobes becoming greatly elongated with budding, which process continues with the development of the air cells, which are not recognizable until time of birth.

The heart also varies in structure, number of cavities, position, relation to other organs, point of entrance and exit of blood. In some, the venous and arterial bloods are mixed, while in others (principally the more highly developed) the venous and arterial bloods are entirely separated and remain so.

"On the thirteenth day the heart is represented as two straight tubes lying along the sides of the anterior end of the embryo, between the neural folds and yolk sac, and in connection at their wider ends with the vessels that return the blood from the yolk sac. Within a few days the two have united to form one tube already twisted upon itself."

"That the heart arises from a double tube in so many animals indicates that the ancestral vertebrate had two tubes instead of one heart such as is now found in the adult, but this can not be proven by any embryological facts."

"The fiftieth day finds the heart much enlarged on the under surface of the embryo, between the head and the yolk sac. It is attached in front and behind to the floor of the bony rib, free along the middle portion of its length, which is twisted into an S-shaped loop. The dorsal and posterior end of the loop is the auricular portion of the heart and is separated by a slight constriction, the canalis auricularis, from the succeeding or ventricular portion, which forms the widest part of the loop passing from left to right across the body, and then turns forwards sharply to pass into the tunica arteriosa."

"But little is known of the development of the human embryonic heart before the beginning of the third week. At this time there are three visceral arches to be faintly observed in the neck. The heart, represented by a large twisted tube, may be seen between the embryo and yolk sac. These appear simultaneously with the head and neck and the development of the proto-vertebræ."

"The wall of the heart is double along its entire length and consists of an outer mesoblastic tube, in which muscle cells are found on the fifteenth day."

"*The esophagus* is also constant with vertebrates, varying, however, in its structure and proportions. Its purposes are the same, being the means of the direct entrance of food to the digestive apparatus. It is in the median line, anterior to the vertebræ, behind the heart and lung, and paralled to and in close proximity with the aorta and vena cava."

"The esophagus first appears embryologically on the fifteenth day, lying immediately above the heart and the mouth; the opening appears on the sixteenth day by perforation of the stomatodeal septum, so that by the middle of the fourth week the alimentary canal is well formed and the esophagus much increased in length by the fifth week."

"*The pneumogastric nerves* are also constant, filling the same office, their position and course remaining very much the same throughout all."

The thorax surrounds the organs of circulation and respiration and through it in all animals passes the pneumogastric nerve, the esophagus and the large vessels supplying the upper and lower extremities.

When mature it is bounded above by the soft structures of the neck behind by the vertebræ and ribs, at the sides by the ribs, in front by the ribs and sternum, and below by the diaphragm.

It is one of the first parts of the body recognized in fetal life, being noticeable as early as the twenty-first day. Of its hard structures

the cartilages constitute about 12 per cent.; the vertebra, about 60 per cent. to 70 per cent.; and the ribs about 20 per cent.

The diaphragm is a thin membrane separating the thoracic from the abdominal cavity. The pleura is only an extension of the peritoneum in those animals not having a diaphragm.

The ribs may be fractured or they may be subject to any of the diseases necessitating surgical interference. Fractures may be simple, compound, comminuted or compound comminuted.

Pathological conditions may be malignant or non-malignant neoplasms, osteomyelitis, tuberculosis, syphilis and osteomata.

Any one of these may attack the cartilages, ribs or vertebra and while the cartilages and bony structures are subject to the same injuries and diseases, either may take on active inflammation and result in carious degeneration necessitating the removal of a part or all of any one or both. More than one hundred cases have been reported due to the bacillus typhosis.

The periosteum covering the entire bony and cartilaginous structures of the chest varies in thickness and practically of the same organization.

The diaphragm is the most highly developed in man of all animals. Now and then, occasionally, as an anomaly, it is absent.

The vertebræ may be fractured, or dislocated, or have caries, foreign bodies, neoplasms, cysts, abscesses and fistulæ.

Fractures may be in any part of one or more of the vertebræ while *dislocations* may be lateral, posterior or anterior, partial or complete and *caries* may involve any part of one or more vertebræ.

Fistulæ as a result of caries, may pass backward, laterally, anteriorally, or downward, seldom upward owing to gravitation. They may occur at any place below their origin usually through the psoas muscle.

Foreign bodies may become imbedded in one or more vertebræ, pass entirely through them or penetrate the vertebral canal and remain there, without causing serious trouble, unless the cord has been partially or completely divided or compressed.

Neoplasms, osteomata, carcinomata, or echinococcic cysts may be present. They may be checked in their course, without serious consequences, or they may destroy a part or all of the bone or cord.

Cysts may be of blood or pus due to bacteria or parasites.

Abscesses are usually due to tuberculosis, but may be due to syphilis, injuries or infarcts. Symptoms may be due to any of these causes.

Fractures of the ribs and cartilages are due to many causes, usually traumatic, but they may be due to osteomyelitis, syphilis, neoplasms, or muscular contraction, known as spontaneous fracture. Usually the point of fracture is in the median lateral line, or separation from the costal cartilages may ensue. Fractures may be simple, compound, comminuted or compound comminuted, and their treatment simple or complicated.

Simple fractures are best treated by rest, depending upon the degree and number of ribs involved and location of fracture. The time required for repair depends upon the age and condition of the patient, usually fifteen to twenty days in the young with good health, while forty, sixty or ninety days may be required or union may not occur at all in those of advanced age or in bad health. If one rib is fractured, it is supported by the ribs on either side, as with the fracture of a paling in a fence the paling is not easily displaced because the other palings hold it in position. When more than one rib is fractured, there is usually some displacement. While the treatment for the fracture of a single rib is rest, sometimes the patient may not even remain in a recumbent position, or may continue to perform regular duties. Adhesive plaster is usually of no benefit. On the obese it will become merely a narrow band. The most desirable way to support the entire chest from the diaphragm to the axillary space, is with a bandage snugly adjusted with safety pins placed anteriorly. The patient can then resort to abdominal breathing, by increasing the number of respirations to twenty or thirty per minute. If this is done the amount of oxygen is also increased; thus the same amount of oxygen is inhaled that would have been inhaled with fifteen normal respirations. With these simple instructions the treatment of fracture of one rib is usually easy. If the lung is involved, the treatment will be more complicated. If the ribs are separated from their cartilages the union is not so rapid or perfect, as when the rib alone is fractured.

The time for cartilaginous union is sometimes several months. When such fractures do not unite, an injection of alcohol in or about the point of separation sometimes creates enough inflammation to cause them to do so. If, however, they do not unite, with any of these methods, they may be brought together and retained with wire. This may be done subcutaneously by passing a long needle around the rib, which will hold the fragments in position until they do unite. This is done on the same principle that wings of birds are made fast to prevent flying. Until the last ten or fifteen years the distal joint of one wing was amputated; now the outer extremity may be flexed and fastened with wire until the joint becomes ankylosed. This prevents uniform action of the wings without pain or disfigurement.

Thoracotomy. The indications for this procedure are the presence of blood, pus and serum within, and laceration and puncture of the thorax. There may be a puncture of the internal mammary, or intercostal artery, necessitating an opening in the thoracic cavity to check hemorrhage, it being impossible to explore through the intercostal spaces. An opening through the intercostal space is made only for drainage. Division of one or more ribs may be done within thirty or forty seconds —it not being necessary to ligate the vessels in doing so, because crushing with the forceps will prevent hemorrhage. Hemorrhage from the internal mammary is easily controlled by forceps or ligature. The chest is opened for pus as in empyema, serum, exploration for neoplasms, injuries, lacerations of the pleura, or injuries to the lungs, pericardium, or heart. It is also opened for punctures, large or small, the latter as a rule being more serious than the larger punctures. No part of the thorax is removed in thoracotomy.

Thorectomy involves not only an opening, but a removal of some of the structures of the chest. The indications are foreign bodies, neoplasms, caries, cysts, abscesses, cardiolysis, pneumolysis, and fistulæ. With foreign bodies it may be necessary to remove one or more ribs or cartilages, and to replace a part or all of them. If a neoplasm is in the mediastinal space, a partial—never a complete—thorectomy is necessary. Complete would mean the removal of all the bony structures of the thorax. If the neoplasm be upon the vertebra or the diaphragm, it may be necessary to remove a part of one, two or three ribs, for suturing of the diaphragm, or to operate upon it for any cause.

If caries of one or more ribs exists it would be necessary to remove all diseased tissue wherever found.

With echinoccic cyst, abscesses, blood cysts, etc. it is sometimes necessary to have perfect drainage, it is also necessary to have an opening large enough to introduce gauze packing which should also necessitate the removal of one or more ribs. There may be an abscess of the lung, and that would necessitate removing one or more ribs.

Cardiolysis and Pneumolysis require the removal of a part of the bony and cartilaginous structures. The thickened pleura that contracts the lung is then removed. An abscess cavity in the lung will collapse, and in that way become obliterated. So it is that the heart in cases of pericarditis with effusion, and where there are pericardial adhesions interfering with cardiac expansion, the structures are removed from over the heart that it may have more expansion and thereby better perform its function.

Diaphragm. Cysts of the diaphragm containing blood, pus or serum, may be due to bacteria or parasites. They are usually in the thicker portions of the diaphragm, and may rupture to escape through the psoas muscle. Some of these cases perplex the diagnostician in making a differential diagnosis between diaphragmatic and tubercular disease of the vertebrae. An opening may be made into the thoracic or abdominal cavity, preferably through the thoracic cavity. The vacuum chamber may facilitate this work. It has most frequently been done through the thoracic cavity.

Neoplasms of the diaphragm may be benign or malignant. The benign are lipoma, fibroma or chondroma, extending from its periosteal attachments; the malignant tumors are sarcoma and carcinoma. Hare's prize essay, in 1878 reported 578 mediastinal tumors.

Hernia of the diaphragm is exceedingly interesting. Of several hundred reported there are but one or two on the right side. It does not occur on the right side, because of the relation of the liver to the diaphragm. Hernia of the diaphragm is usually operated on from be-

low, because it is usually the abdominal viscera that passes through the diaphragm; they are therefore more easily returned this way. There may be adhesions or gangrene of the intestinal tract, and for this reason it is safer to do the work through the abdomen. The lung seldom passes downward. The herniated tissues are usually intestinal.

Abscess of the diaphragm may be primary or secondary, result from liver or pulmonary abscess or infections of the pleura, peritoneum, kidney appendix or any bacteria that may produce infection of cysts of any character such as echinococcic cysts.

With suspended heart action digital manipulation through the thoracic or abdominal cavity is admirable in certain cases. When open, the abdominal cavity offers the best route for such stimulation. The hand may be passed upward and the heart squeezed sixty or eighty times a minute. After this is done it is necessary to suture the diaphragm, in the usual way.

Diaphragmorrhaphy is done for incisions, punctures, laceration and ruptures of the diaphragm, either may be accidental or intentional.

Lacerations usually result from falling from aloft, upon the buttocks, causing the abdominal viscera and lungs to exert their force in all directions. It may, however, be lacerated from force applied in any direction upon the chest, or fracture of the ribs and cartilages, and sometimes the result of laceration from pathologic lesions.

Puncture may be done by a sharp instrument or a knife, or it may be the result of a gunshot wound. A knife injury usually bleeds more freely, because of the sharp edges. *Rupture* of the diaphragm sometimes occurs when the patient has been in a recumbent position from some debilitating condition for several months. It has been known to rupture because of quick or violent motion. Suture is necessary, because hernia of the abdominal or thoracic viscera may result. No doubt some of the small ruptures will repair themselves and the propriety of suturing all ruptures may be questioned. However, the patient should be given the benefit of the doubt with exploration in all cases.

The pleura is an extension of the peritoneum, and its function the same. It secretes and excretes, and performs all the physiological functions of the peritoneum. It may be injured or diseased, for the repair of which pleurotomy, pleurectomy and pleurorrhaphy are done. The indications for pleurotomy are blood, pus, serum, foreign bodies or neoplasms. Pleurectomy is simple incision of the pleura for the purpose of doing whatever may be necessary.

Pleurectomy is the removal of a part or all of the pleura. It is necessary to remove pus, blood serum, foreign bodies or neoplasms. The blood may come from any of the vessels, large or small, any one of which may become infected. Serum in abnormal amount may be the result of acute inflammation. Foreign bodies may enter from without or within. They may enter from the bronchus or esophagus, or they may pass through the lung into the pleural cavity.

Neoplasms may be malignant or non-malignant, large or small, and parasitic or bacterial in their origin. *Pleurectomy* necessitates the removal of one or more ribs or cartilages, which is also necessary for decortication or thorocoplasty, for thickening of the pleura. Within the last few years an operation has been inaugurated by which these conditions may be relieved by removing all the pleura overlying the lung. This may be the costal and visceral pleura united. The obliteration of the pleural cavity is due to union of the parietal and visceral pleura. It may be necessary to remove several inches of it, that the lung like the heart, may be given an opportunity to expand and functionate properly.

The lung alveoli may be at rest for months and then be made to functionate, but if they are destroyed they never do so. If a portion of the lung be removed the remaining portion will expand to occupy the pleural cavity. In doing so the alveoli will become distended and elongated in which condition they lose their function because they can not contract. *Decortication* is now the accepted operation to give relief in cases of tuberculosis, abscess or adhesions causing the lung to lose part of its function. There are many invalids caused by this condition who may be relieved in this way not only with tubercular cavities of the lungs, but with other diseases.

Pleurorrhaphy is done for lacerations, incisions or puncture, all of which may be regular, irregular, lateral or perpendicular. Such wounds may be simple or compound, septic or aseptic, with or without hemorrhage. They may or may not involve the pericardium, or

mediastinal space and they may unite the two pleural cavities so that they may or may not necessitate surgical interference, which must be determined by the general condition of the patient. If an operation is decided upon the chest must be opened boldly and quickly, with or without general or local anesthesia. Nearly all of these operations may be done without a general anaesthetic. The suture should be chromicized catgut, but it may be fine linen or silk. In nearly all this work the interrupted suture must be used, because if one suture breaks the rest may serve the purpose.

Editorial.

The Curability of Traumatic Neuroses.

The traumatic neurosis was formerly the bugbear of medical art; for its pathogenesis was at one time so vague that the indications for treatment were mere haphazard.

It is not yet generally realized that this is no longer so; but two cases recently reported in detail will show the careful reader how very amenable is this condition to the correct treatment which we now know. The first of these was reported in the *Medical Record*, October 2, 1909, by Dr. Tom A. Williams, of Washington, D. C. The second was reported by Dr. Julius Grinker, in the *Northwestern University Bulletin* of December last. As the first concerned a railroad accident, it is perhaps the more practically important of the two; and our readers will be glad of a few comments.

After bruising his back by a fall from a car, a railroad brakeman remained for six months very lame; and the sensibility of the lower limbs appeared to be lost. His tint had become sallow, and he was dyspeptic and emaciated; he was sleepless, sad, and cried much. The neurological examination reported with the case showed that there was no destruction of the nervous elements. The disability was shown by psycho-analysis to be a function of the false fixed-idea induced by the belief derived from his environment and some of his doctors, that such symptoms as he showed could and should follow such injuries as he had had. One sitting sufficed to begin the correction of the false-notion; and he himself completed the persuasion, and was able to return to work in a month, as Dr. Williams had predicted.

Hysterical anorexia is not due to failure of the function of eating, but is due to the positive notion of not eating. A hysteria incapacitating locomotion is not due to the absence of the power to walk, but is due to the positive idea of not walking. This is not a mere quibble. A hysterical manifestation is not due to the absence of something needed for normal adaptation, but is due to the presence of something redundant, namely, the false fixed-idea which determines the patient's autopsychic or allopsychic misconduct. The case illustrates these points most clearly.

The corollary of these principles is that a hysterical outbreak merely connotes a sufficiently powerful suggestion in a susceptible person. Now, susceptibility to suggestion is as variable as that to tuberculosis or malaria. No one is quite immune. We can measure none of these, but we can test any of them, although it is not always advisable to do so. When necessary, however, as in a medico-legal case, this can always be done; for attention, perception, memory, association of ideas, fatiguability, and even the emotional reactions can be sufficiently and accurately estimated for clinical purposes.

Hence the medical man need no longer rely upon vague impressions of nervousism or hystericalness; for it is his duty to estimate these as accurately as he counts blood corpuscles, or ascertains the reaction to tuberculosis. It is only by such experimental methods that our art can remove the reproach it has justly incurred regarding the cure of so-called traumatic neuroses.

It is shown that the loss of appetite, insomnia, emaciation, and unhealthy tint of the skin were secondary to the mental worry concerning the circumstances in which he was placed through his fixed ideas, the false belief that he was irretrievably damaged in his spinal cord, and would be unable to earn a living for himself and family; and his whole *affective* tone thus became morbid secondarily to an idea derived by suggestion, as appeared.

Of course, shock perturbs the neurons, but does so temporarily. The physiological law of fatigue permits of no exception. A neuronic system can only energize for a certain time. Even the spinal reflexes soon become exhausted; and the more complicated psychic reflexes much more quickly. The autonomic system has a slower rhythm than the cerebro-spinal, yet it

soon tires. A blush lasts only a few minutes. The "goose-skin" soon passes, even though cold continues. The cold sweat of fear is no more permanent. Even "frightpalsy," which is largely conditioned by an idea, soon recovers as the circulation resumes its normal tone.

Hence the persistence of the incapacity induced by the shock of the accident is intellectual, and not *due to* the primitive emotion. It is really a false belief which determines untrue acts—untrue in the sense of the bad adaptation to environment. The process by which the false belief arises may be termed suggestion, for it is an idea unmodified by other corrective or inhibitory ideas.

Inhibition has been invoked very differently by many writers on hysteria, who believe that a cortical center is prevented from functioning by this negative cause. Babinski and his followers have made it clear, however, that the abeyance of function is not inhibitory, but kinetic, and that a patient is positive, rather than negative, in his attitude towards his disability.

The New University College of Medicine.

The rebuilding of the University College of Medicine, Richmond, on large and modern lines is now an assured fact. Our readers, who know and appreciate the advanced work done for the South by this school of medicine during the past seventeen years will unite with us in congratulating our South Atlantic States upon this announcement. That high order of teaching, as a product of the intellectual and scientific attainments of its teachers, the advanced ideals that would make for the enlargement of its field of scientific usefulness, as shown by its pioneer work in the South in medical teaching, and, further, the indomitable spirit which characterized the Board of Trustees and faculties in its purpose to rebuild, make us feel confident that the new college will assume proportions consonant in architecture equipment and scholastic requirement with the latest and most approved ideals and methods of medical training.

From what we can learn it seems assured that the public at large, both professional and lay, is coming to the material assistance of this medical institution in its laudable purpose to perpetuate its usefulness. Besides large and liberal contributions from the members of its Board of Trustees and faculties, many and liberal donations are being received from those interested in modern medical teaching. These amounts, added to the substantial properties now owned by the corporation, seem to assure the erection at once of a large, modern medical school building adjoining the Virginia Hospital. This association with the hospital offers the opportunity for the erection of such a building as shall be in keeping with the most effectual teaching of medicine, dentistry and pharmacy. For it is now conceded that a medical college cannot properly teach disease and its treatment without hospital accommodation as an integral part of its equipment. For as laboratories are to the primary branches, so the hospital and dispensary departments should be to the practice branches of medicine in an up-to-date medical school. This fundamental fact will be, we are sure, the great pivotal point around which all the plans for the new building will turn. With its modern building erected upon such lines and the renovation and enlargement of its Virginia Hospital, the new University College of Medicine, we feel confident, will continue to educate and train a large number of medical students of our Southland in modern medicine and will also afford the practicing physicians of ours and neighboring States those excellent opportunities so much needed for study and research work in medicine and surgery.

The National Confederation of State Medical Examining and Licensing Boards

Will hold its twentieth annual meeting at St. Louis, Mo., June 6th, in the Southern Hotel.

A cordial invitation is extended all members of State Boards, professors and teachers in medical schools, and others interested in securing the best results in medical education. The officers of the confederation are: President, Dr. A. Ravogli, of Cincinnati, and Secretary, Dr. Murray Galt Motter, of 1841 Summit Place, N. W., Washington, D. C.

The National Association for the Study of Epilepsy and the Care and Treatment of Epileptics,

Which met in Baltimore May 7th, under the presidency of Dr. William F. Drewry, of Petersburg, Va., was probably the most interesting meeting in the history of this association. Instructive papers were read by some of the

most prominent men in the country connected with this work, and it is hoped that the work done by this association may lead to the establishment in all the States of homes for caring for this class of unfortunates.

The South Piedmont (Va.) Medical Society,

At its annual meeting, held in Danville, Va., on April the 19th, elected the following officers for the ensuing year: President, Dr. Samuel Lile, Lynchburg; Vice-Presidents—Drs. W. L. Williams, Brookneal; R. B. James, Danville; H. S. Belt, South Boston; J. A. Owen, Turbeville, and Secretary and Treasurer, Dr. George A. Stover, of South Boston. The next meeting will be held November 15, 1910, at South Boston.

Dr. Abraham Jacobi,

Of New York City, was tendered a reception by the Medical Society of the State of New York, May 6th, in celebration of his eightieth birthday. A notable feature of this entertainment was the fact that the committee in charge of the affair was composed entirely of ex-presidents of the Medical Society of the State of New York and of the recent New York State Medical Association.

Dr. A. S. Priddy,

Of Keysville, Va., formerly superintendent of the Southwestern (Va.) State Hospital at Marion, was selected executive officer of the State Epileptic Colony, with instructions to commence upon his duties at once. It is hoped that provision will be made for the accommodation of 100 epileptics by the time the Colony is taken over by the General Board next April.

Northampton County (Va.) Medical Society.

At the meeting of this society held in April Dr. E. W. P. Downing, of Franktown, was elected President; Dr. B. H. Gilmer, Townsend, Vice-President; Dr. Carlisle L. Nottingham, Cape Charles, Secretary, and Dr. W. L. Dalby, of Bridgetown, Treasurer. The next regular meeting will be held July 6th, at Cape Charles.

The Alexandria (Va.) Medical Society,

At its annual meeting held in April, elected the following officers for the coming year: Dr. S. B. Moore, President; Dr. R. L. Wilkins, Secretary; Dr. Llewellyn Powell, Treasurer. A banquet followed the business meeting and an enjoyable social evening was spent.

Dr. R. M. Slaughter,

Of Theological Seminary, Va., Treasurer of the Medical Society of Virginia, who was recently operated upon for chronic apendicitis at St. Luke's Hospital, Richmond, has returned home much improved in health.

The United States Civil Service Commission, Washington, D. C.,

Announces an examination on June 1, 1910, to secure a physician at $1,000 per annum and quarters, for the Indian Service, and similar vacancies, as they may occur.

The Shenandoah County (Va.) Medical Society

Will hold its next meeting on June the 15th, at Woodstock, Va., with Dr. D. D. Carter presiding. Dr. William F. Driver is Secretary of the society.

Dr. Joseph T. Dupuy,

Recently of Ballsville, Powhatan County, Va., has moved to Richmond, R. D. No. 5, Va.

Obituary Record.

Dr. Samuel Peachy Latane,

Of Winchester, Va., while responding to a professional call on the night of May 1st, was instantly killed, owing to failure of his automobile brake to work, which caused the machine to run over an embankment, thus breaking the doctor's neck.

Dr. Latane, who was a son of the late Bishop James A. Latane, of the Episcopal Church, was a graduate in medicine of the University of Maryland in the class of 1897, afterwards taking post-graduate courses at Johns Hopkins and University of Heidelberg. Though still a young man, he had held many positions of trust in his profession, and at the last meeting of the State Board of Health, had been elected Secretary of that Board. Dr. Latane was a man of marked ability, and his loss will be keenly felt by a host of friends throughout the State. His wife, who is the daughter of Dr. William S. Love, of Winchester, mother and several sisters and brothers survive him.

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Original Communications.

FRACTURES OF THE BASE OF THE SKULL.*

By H. STUART MacLEAN, M. D., Richmond, Va.
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Fractures of the skull have been conveniently divided into those of the vault and the base. They have been further classified as bending and bursting fractures.

A bending fracture is one in which the violence at the point of impact is of sufficient force to compress the bone beyond its cohesive strength or molecular cohesion, and results in the solution of continuity of the bone—the inner table first and the other layers in proportion to the extent of violence and direction of its application.

Bursting fractures are those in which the solution of continuity of the bone usually radiates in a line or lines from the point of impact, these lines extending in various directions and involving the base, or vault or both. It is common to find lines of fracture extending from the base to the vault, but as a matter of fact, the line of a fracture *per se* is of little or no importance. The great elasticity of the skull allows for return to normal form and position immediately after the cessation of violence; and the fact of importance in these cases is the damage which has been done to the membrane and soft tissues along the line of temporary separation of the fragments of bone or by *contrecoup* on the opposite side of the head.

The more rigid, nonelastic character of the base accounts for its breaking so frequently, as it breaks before the vault has reached its limit of cohesive strength.

The same class of complications are to be met with in fractures of the vault and base, viz.: compression, laceration, edema, etc. It will be seen, therefore, that in considering fractures of the base, fractures extending into the vault must be considered, but the intention is to deal briefly with these cases in which the symptoms are largely those of basal fracture.

At the outset we are confronted with the multiplicity or complexity of symptoms, which are apt to confuse and render diagnosis difficult, and the adoption of remedial measures answering throughout the maze of symptoms, for certain definite fundamental points should be recognized and kept in mind in weighing the extent, severity and outcome of a given case.

It should be borne in mind that the symptomatology of these cases is not that of the fracture but of the conditions or complications arising therefrom, and, in the same way, the symptoms are the measure of the extent and tendency of these complications and not of the extent of the fracture.

Symptoms.—External evidence, such as contusions, bruises, cuts, laceration, or even the slightest of swelling, should be looked for. One or the other will be found in a majority of cases of fracture of the base, although such evidence is not always a guide to the site of the fracture and absolutely no guide as to the direction it has taken. It may, however, have decided weight in determining the point of attack in the case of operative intervention.

Hematomata frequently develop either at the point of injury or in the adjacent portion of the scalp. They probably are due to slow subcutaneous bleeding as the writer has observed them appearing five or six days after injury. They should not be confounded with subcutaneous accumulations of cerebro-spinal fluid escaping through a ruptured dura and opening in the bone.

Mental Symptoms.—These vary all the way from nervousness or irritability to profound coma. Unconsciousness may arise from simple concussion, or a temporary disarrangement of

*Read before the South Piedmont Medical Society, held at Danville, Va., April, 1910.

the nerve cells, contusion or laceration of the brain substance, or compression. In the main, unconsciousness may be described as the effect of cerebral anæmia. This is brought about by pressure either from a blood clot, free extravasated blood, edema of the brain substance, or the escape of serum into the subdural space.

Unconsciousness may develop immediately after the injury and continue for an indefinite time. It has long been recognized that passing into the unconscious state in a short time after the injury is indicative of an increasing hemorrhage. Great stress is laid on the conscious interval existing after injury and followed by a gradually deepening unconsciousness and its significance can hardly be overestimated.

Peripheral or Focal Symptoms.—In basal fracture, the most frequent peripheral manifestations are found in one or more of the cranial nerves. This is due to the fact that the line of fracture in crossing the base involves the openings through which these nerves escape from the skull and the attendant exudation or laceration produces peripheral symptoms.

The facial is most frequently involved and gives rise to the characteristic hemi-facial paralysis. The abducens (producing internal strabismus) and the motor-oculi nerves (producing varying ocular defects) are occasionally involved. The optic or olfactory are injured by the fracture passing through the anterior fossa, while injury to the remaining cerebral nerves has been reported. Motor and sensory disturbances of the extremities or trunk, when occurring in case of fractured base, are the result of the extension of the complicating condition, as edema or hemorrhage, to the cortex or laceration of the excito-motor area.

Bleeding from the nose or ears is of great significance, the former indicating that the fracture has passed through the anterior fossa, and the latter that the middle fossa is involved. Bleeding from purely local sources must here be excluded and, even when a ruptured ear drum is diagnosed, it does not follow that there is a fractured base. If the bleeding from the ear is continuous, gradually becoming thinner and of light color, showing the admixture of cerebro-spinal fluid, it is strong confirmatory evidence of fracture involving the petrous portion of the temporal bone. Instances of copious discharge of cerebro-spinal fluid from the ear are of rare occurrence.

Eyes.—In the eye may be found valuable symptoms. Injuries involving the cavernous sinus lead to a condition of exophthalmos and the most marked congestion. The presence of choked disk or retinal edema is of the greatest importance, and whenever possible, or when necessary as a confirmatory symptom, the examination of the fundus should be made. While there is some difference of opinion as to the cause of this symptom, it seems most reasonable to believe that it is an edematous condition due to poor drainage, depending upon increased intra-cranial pressure. It may be unilateral or bilateral; the former suggests a distinctly local condition, while the latter indicates a general increase.

The earlier the onset of retinal edema can be recognized the better, as it goes far toward confirming an opinion of pressure from cerebral edema or compression before it has become so extensive as to do irreparable damage to either the eye or the brain itself.

Pupillary reaction affords another valuable guide. A contracted non-reacting pupil may mean simply an irritated or stimulated oculimotor nucleus, whereas a dilated non-reacting pupil indicates direct pressure on the oculimotor tract or involvement of the nerve in its passage along the base of the brain or at the point of exit from the skull. When this symptom is unilateral, it is of that much more importance in determining the location of pressure.

Murray[1] quotes statistics which tend to show that a large majority of the cases with non-reacting pupils terminated fatally. He quotes Watkins to the effect that the ciliospinal tract controls, to a large extent, the pupillary reaction; its irritation causing dilation and its destruction causing contraction. This is in direct conflict with the explanation based on injury to the ocular motor tract or nerve and the deduction is to be made therefor, that either factor may effect the pupil independently, and constitutes another point on which to base a localizing diagnosis.

Temperature.—Phelps[2] lays great stress upon the significance of temperature in these cases and the necessity for a careful study of its range. Following the possible sub-normal temperature accompanying the shock of the injury, a temperature ranging up to 100.5° may indicate superficial hemorrhage with slight cere-

X-RAY PHOTO, BY DR. A. L. GRAY, ILLUSTRATING DR. H. STUART MacLEAN'S CASE.

bral injury. A temperature above 101 indicates marked cerebral damage, while a temperature of 105 or over usually means a fatal termination.

In general, there are three causes of high temperature: (a) infection, usually through the ethmoid plate or middle ear; (b) extensive laceration; (c) cerebral edema and disintegration due to excessive pressure from serum or clot.

Circulation.—The pulse is usually full, slow and occasionally irregular; the slowing being proportionate to the amount of intra-cranial pressure, and with it there is usually a rise in blood pressure. There are exceptions to the rule and cases have been reported of large clots with normal or rapid pulse rate; but usually a pulse of 60 may be considered as serious, and a pulse of 40 to 50 justifies the opinion that progressively unfavorable changes are taking place.

When the blood pressure exceeds 180 it is strong confirmatory evidence, taken into consideration with other symptoms, of cerebral pressure, although this symptom is variable and subject to striking exceptions.

Later in the progress of the case, there is apt to be a dimunition in the blood pressure and it will drop below normal. This may be construed as an unfavorable sign. Coupled with this symptom, we have the slowing of respiration, dropping to 10 or 12 per minute and the onset of Cheyne-Stokes respiration.

Lumbar Puncture.—This is frequently advisable for diagnostic purposes. If there is a discharge of a large quantity of fluid, under high pressure, it indicates increased intracranial pressure and, if the fluid contain any number of red blood cells, it confirms a diagnosis of subdural hemorrhage.

Other symptoms frequently noticed are those of headache, nausea, vomiting, vertigo and convulsions. It is believed that the latter symptom is suggestive of compression or irritation of the occipital lobe and in the patient presented today such was the case.

Diagnosis.—While it is sometimes considered an easy matter to diagnose a basal fracture, yet there are border-line cases where one will be forced to hesitate long before making a positive diagnosis. It should be borne in mind, however, that the mere diagnosis of such a fracture is not the most important consideration, but a prompt recognition of the character and seriousness of its resulting complications. The problem of locating these complications is the urgent and difficult one and its solution has to be based upon such history as can be obtained with reference to the manner in which the injury was received, together with the focal and other symptoms as they occur. By these, we are led to locate the injury in one of the fossæ.

If there is bleeding from the ear, associated with paralysis of the facial nerve and other symptoms of intra-cranial damage, the fracture probably extends into the posterior fossa, as the fracture in injuring this nerve will tear the tubular prolongation of arachnoid around it and the converse may, likewise, be considered as a good rule.

The flow of blood or serum from the ear without facial paralysis indicates a fracture in the middle ear.

The use of the X-ray in these cases has never been sufficiently emphasized and, from our experience in the patient referred to below, it was of the greatest value as shown by accompanying plate. I believe it should be made an invariable rule, where the condition of the patient will allow the time, to X-ray every case of suspected fracture of the skull, either in the base or vault. The picture can be taken, developed and examined within half an hour and a case has to be an urgent one which will not allow of this being done when any doubt exists as to the location of the lesion.

Treatment.—The mortality for basal fractures has been about fifty per cent. Crandon and Wilson,[3] reporting on 530 cases at the Boston City Hospital in a period of forty-two years, showed 299 recoveries and 231 deaths. Any measure which will enable us to reduce this percentage should be welcome and the medical profession is indebted to Dr. Harvey Cushing for advising the decompression operation in basal fractures. He says:[4] "During the past three years in a fairly large series of cases we have followed the routine of making a subtemporal exploration—combined with a subtemporal decompression—together with a dural opening. Contrary to our former mortality (about 50 per cent.) we have lost only two of our last fifteen cases, both due to the fact that a unilateral exploration alone was performed and an extensive extravasation on the opposite side of the head was overlooked."

The writer has had five cases of basal frac-

ture within the past two years, three of which were operated upon and recovered; two were not operated upon, one of whom died and the other recovered.

The objections have been raised, (a) that such an operation simply opens another avenue of intra-cranial infection in addition to the already existing one in the nose or ear; (b) that the shock of this operation adds to the already serious condition of the patient; (c) that there is bound to be some damage done to the brain by such an operation; (d) that it is unwise to submit either the desperate cases to a hopeless operation or the slight cases to an unnecessary one.

It will be admitted that the operation is a rational one based upon the principle of drainage, and experience has shown that the cranial cavity can be entered, under proper precautions, with as much safety as the abdominal cavity. Certainly, if the drainage from the ear is an effort on the part of nature to relieve the brain of pressure, or if lumbar puncture will give temporary relief, a freer opening with freer drainage cannot be objected to.

The writer does not take the stand that it is necessary to operate upon every case, but has adopted the rule of operating upon those cases which present grave or unimproving symptoms or indications of unfavorable progress.

With reference to the additional shock of the operation, attention would be called to the fact that shock in a case with abnormal high pressure has little or none of the significance of the operative shock where the blood pressure is normal or low, and in addition a minimum amount of anaesthetic is required.

The damage to the brain in these cases should only occur when it is necessary to relieve a subcortical lesion. In relieving the pressure from serum or subdural clot there is no reason to believe that resulting damage will be done to the brain substance; and it may be added, further, that in the event of damage being done by removing such a clot, the injury is not to be compared with that which may result from leaving the clot undisturbed.

As to the question of not operating upon the desperate or the slight cases, that is a matter which lies within the judgment of the attending surgeon. When we consider some of the remarkable results which have been obtained in so-called desperate or hopeless cases, we should be chary of pronouncing any such case as belonging absolutely in that class; on the other hand, the so-called slight cases are worthy of the closest attention and are entitled to operative intervention if they do not show favorable progress. No harm can come by endeavoring to relieve the apparently hopeless cases (save the injury to one's statistics).

If the pulse become slower, coma or stupor deepen, involvement of the peripheral nerves more marked, with slowing, and particularly Cheyne-Stokes respiration, we believe it the duty of those in attendance to decompress and drain the implicated fossa.

In addition, the decompression operation affords opportunity to relieve complications, such as epidural, or subdural hemorrhage, depressed bone and other unrecognized injuries, which have frequently been found during the performance of the simple operation for drainage.

Sir Wm. Savoy's[5] case, where there was a copious discharge of cerebro-spinal fluid for a month, and other similar cases show the relief afforded by nature in draining such injuries and the established therapeutic measures for depletion act along the same line.

A description of the operative technique is unnecessary and, as for the instruments used, we would only say that those with which the operator is familiar will give the best results. The writer has always used the ordinary trephines with Dahlgren forceps and Gigli saw and has not been attracted by the more complicated newer instruments.

The following is a brief statement of the history of the case which I wish to present here to-day:

R. S., age fourteen, was injured January 15, 1910, in a collision between a wagon and street car, by being thrown from the former.

When seen at the Virginia Hospital within an hour after the accident, his condition was as follows: Patient practically unconscious, responding slightly to peripheral stimulation and supra-orbital pressure; could not be aroused, nor give any intelligent answer to questions. He had two contused lacerations in the occipital region and was bleeding from the right ear. His pulse ranged about 70, blood pressure 130 and practically stationary. The fundus showed no edema; moderate paralysis of the right facial nerve.

In view of the absence of distinct focal symptoms, and with the mental condition indicating irritation rather than anæmia from compression, normal blood pressure and no eye symptoms, it was decided to follow the expectant treatment.

The next day, early in the afternoon, the patient's nervous symptoms changed to convulsive or spasmodic movements, jerking his limbs, and occasional general stiffness over the entire body. On two occasions this symptom amounted to marked opisthotonos. Upon careful observation it was seen that on the left side the movements were somewhat more marked or violent, and we thereupon decided to do a subtemporal decompression on the right side.

The operation was performed on the evening of January 16th. Upon removing the button of bone the dura bulged into the opening and pulsation was absent. Upon incising the dura the non-pulsating brain was forced into the opening. The brain was gently pressed back from the opening and this allowed the escape of a considerable quantity of blood-stained serum, which also contained numerous fine shreds of blood clots. After a considerable quantity of the fluid had escaped, pulsation of the brain returned.

On account of the more marked movements of the left arm and leg, it was considered wise to pass a rubber tissue drain under the dura and up toward the excito-motor area. Another drain was passed beneath the temporal lobe, draining the middle fossa. The wound drained freely for several days and his mental symptoms improved somewhat after the operation. Consciousness did not return for two weeks, but the convulsions ceased immediately. Blood pressure remained low, while the pulse went up to 120, and from that time on stayed over 100.

At the end of three weeks the boy had sufficiently regained consciousness to recognize members of his family occasionally, but his cerebration was decidedly faulty. Facial paralysis still persisted. He was very difficult to manage, restless, tossing about the bed, and the only thing about which he seemed to have excellent control was an abundant and fluent stream of profanity.

Upon examination of the eyes, no choked disk was found, but it was noted that he could not follow an object toward the right side with both eyes as well as he could toward the left. In following an object moving to the right he had to turn his head. The object could be followed either way with either eye alone, but the co-ordinate movement was diminished. This is a symptom frequently noted and possibly indicating occipital involvement, although its focal significance is not clear. The facial paralysis persisted. He could speak so few intelligent words that it was impossible to get any idea of the activity of his higher centers.

A few days after the accident it was noted that he had developed what appeared to be a hematoma at about the location of the posterior fontanelle. This varied in size and appeared to gradually diminish until the third week after injury. At this time an excellent X-ray plate was taken by Dr. A. L. Gray. As will be seen, it shows a distinct fracture extending from the right parietal eminence backward and slightly downward to the occipito-parietal suture, then downward across the suture and finally curving forward just above the lateral sinus until it disappeared in the mastoid bone. Such a fracture should be taken into consideration with the unsatisfactory progress after the first operation. This picture, together with the unsatisfactory progress after the first operation, led to the decision to operate again and explore the fracture as shown in the X-ray plate.

On February 16th, at the second operation, upon incising the scalp and exposing the bone, fresh blood or bloody serum could be seen oozing from the upper end of the fracture on the parietal eminence. The fracture was followed, as indicated by the scar on the patient's head, and upon reaching the parieto-occipital suture, the anterior side of the fracture was found to be slightly depressed. At this point a button of bone was removed and considerable hemorrhage noted. The hemorrhage seemed to come from the base of the posterior fossa, and, in an effort to locate it, bone was removed along the line of fracture down into the mastoid portion. While it evidently extended beyond that point, it could not be followed further. It entered the mastoid portion just above the groove for the lateral sinus and evidently passed longitudinally into the petrous portion.

Although a considerable area of bone was removed in the effort to locate the source of

free bleeding, no bleeding points could be found, and it was finally necessary in closing the wound to pack the lower angle firmly just over the lateral sinus to control the hemorrhage. Following this operation the patient immediately began to improve, and left the hospital on March 14th.

In this case it seems quite probable that the so-called hematoma was in reality a cephalohydrocele, the fluid escaping through the upper end of the horseshoe fissure and forming a subcutaneous sac, which sac varied in size from day to day. This solution of the supposed hematoma did not occur to us until after the second operation; otherwise some valuable observations might have been made as regards the effect of pressure on that sac.

The unfavorable symptom in this case was evidently due to pressure on the right occipital lobe, which was not fully relieved by the decompression operation in the middle fossa, and yet the point of election for an operation was apparently through the temporal bone. As mentioned above, bleeding from the ear, associated with facial nerve paralysis, points strongly to a fracture in the posterior fossa.

The patient, as presented here to-day, is in first-class health. He still has an area of pulsation above and behind the right mastoid, which, however, will undoubtedly fill in in a few months. He shows absolutely no indications of the serious injury which he received, except the paralysis of the facial nerve.

On April 18, 1910, he was examined by Dr. John Dunn, who reports no aural or ocular defects.

In cases of partial facial paralysis, such as this, we are justified in making a favorable prognosis. Absorption will ultimately relieve the pressure conditions, which are at present irritating the nerve. If the paralysis be complete, the condition is more apt to become permanent.

Conclusions.

In conclusion, I would mention the following points:

X-ray photographs, at least two in each case, showing both sides of the head, should be recognized as a routine proceedure, where it is at all possible to obtain them. The experience as shown in the case reported was a great revelation to the writer, and he was deeply impressed with the value of the information obtained in this way.

Among the symptoms indicating unfavorable progress, Cheyne-Stokes respirations take a prominent place and a few minutes quiet watching by the side of the patient has sufficed to show the writer the onset of this symptom in so slight a form as to have escaped the observance of nurses and other attendants. Once recognized or suspected, operation should be done before they become marked. If they occur after operation the gravity of the case is doubly increased.

Crile, in his writings on blood pressure, has called attention to the fact that pressure anæmia continued for seven minutes is fatal to cortical function. The significance of this observation lies in the fact that as we do not know how much pressure may exist before the fatal degree of anæmia is produced, it is our duty to relieve that pressure as soon as recognized.

Basal fractures are believed to unite promptly according to Cushing[6]. Fractures of the vault occasionally show slower attempts at union. There is no reason why cranial bones should differ from other bones in uniting, and the conditions which produce occasional delay of such union are in the nature of complications, which might pertain in any other part of the body. The intervention of soft tissues frequently acts in this manner and in the case reported above the non-union found at the second operation was evidently due to the continued forcing of serum and blood through the line of fracture by the intra-cranial pressure.

In cases of suspected brain injury, especially where continued coma masks all focal symptoms, scalp wounds and hematomata should be explored.

The writer has observed in the past six years that in patients under eighteen or twenty years of age, where large areas of bone have been removed, the opening is filled with a firm fibrous mass of sufficient density to fail to transmit cerebral pulsation and believes that, under these ages, we may expect development of new bone.

In doing the decompression operation, either one of two forms of incision may be used; first, the oblique incision, extending from above downward and forward over and paralleling the posterior portion of the temporal muscle; sec-

ond, a "v" shaped incision with the apex three-quarters of an inch above the top of the ear, and anterior thereto. In these cases, drainage should be brought out well in front of the ear so as to avoid contact with that organ, which may not always be thoroughly cleansed in the preparation of the patient.

Drainage of the middle fossa should pass under the lower border of the temporal lobe if it can possibly be placed there, and at the same time strips may be placed in other directions, as indicated by the peculiar factors in the case. Cigarette drains or plain folded rubber tissue makes the best drain and has the advantage of not becoming entangled in granulation tissue, which makes the withdrawal of gauze drainage difficult and painful.

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SOME POINTS IN BACTERIAL THERAPY.*

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As stated in a former paper, some years ago I suggested the formation by the large manufacturing houses of scientific departments and the adoption by these departments of the Working Bulletin System. This suggestion was accepted by a number of the manufacturing houses, and the plan, more or less modified, was carried out by several of them.

What is most urgently needed is a strong central board of control, bureau of materia medica, or pharmacologic society, to act as a clearing house, including in its membership representatives of the medical and pharmaceutical professions and the large manufacturing houses, under whose supervision the Working Bulletins would be published. This would give scientific standing to the Bulletins and would render the Working Bulletin System of great service to both professions. This I have continuously advocated for thirty years, and I am more and more convinced of the value and importance of the plan.

In carrying out the Working Bulletin System in connection with the scientific department of a large manufacturing house during the last two years, I have accumulated in my files about ten thousand letters from physicians in all parts of the United States and our insular possessions, who have applied to us for information on the subject of bacterial vaccines and tuberculins. This paper is in the main composed of questions from such correspondents and reports of their experience in the use of these products. The questions are important ones, and the experiences reported are very suggestive in character. This paper is presented with the hope that it may excite discussion, and that the information thus derived may prove of service to the profession, particularly to those who are making a special study of bacterial therapy.

1. *What Nomenclature Should Be Adopted For Bacterial Vaccines?*—The name "bacterial vaccine" was applied to this class of products by Wright because they are used for producing immunity against pathogenic bacteria similar to the immunity against smallpox produced by the use of bovine vaccines. But the name "bacterin" has been proposed as more appropriate than "vaccine," because the latter term refers more properly to Jennerian vaccination. In this paper I have used the term "bacterin" as synonymous with "bacterial vaccine," with the distinct understanding on my part that this name is free to science and commerce and is not controlled by any manufacturing house. In fact, the name was proposed to me by Dr. S. Solis Cohen, of Philadelphia, who will corroborate this statement.

2. *What is the Diagnostic Value of Tuberculin Reactions in Tuberculosis?*—Several articles have appeared condemning the tuberculin diagnostic reactions as of little value, because reactions occur in persons not suffering with any active tubercular infection. It is, however, pointed out that a large proportion of healthy individuals carry latent tubercle bacilli in their tissues causing them to react to the tuberculin tests. This fact, while of course well known to students of the subject, is not so well understood by the profession at large. Referring to the von Pirquet reaction, in 1898 Hamburger[1] pointed out the fact that it is extremely difficult to find an adult entirely free from tuberculosis, and this explains the great frequency of the von Pirquet reaction in adults. And von Pirquet himself has often stated that

*Read before the American Therapeutic Society, Washington, D. C., May 5-7, 1910.

its greatest value is in the diagnosis of tuberculosis in children. The same objection is made to the Moro reaction, although it was claimed by Emmerich[2], and others, that with the Moro test fewer reactions occur in persons who are clinically tuberculosis-free than when the von Pirquet reaction is employed. Out of sixty cases clinically free from tuberculosis, forty-four reacted to the von Pirquet test and only nineteen to the Moro reaction.

Drs. Charles L. Green and Frank E. Burch[3], of St. Paul, gave an account of the practical utility of the cutaneous and ophthalmic tuberculin tests, based upon their experiences in eighty-three cases, all of whom were over eight years of age. The authors concluded that the reactions were comparable to that of the old injection test with tuberculin; that the two tests ran parallel; that both tests were accurate, but that the subcutaneous test was the most reliable; that all patients with tuberculosis react; that advanced cases with a low resisting power gave a slight reaction; that a failure to react was of great clinical importance; that the reported bad results following the ophthalmic test indicated the necessity for caution in its application; and that relatively few persons reacted who did not on careful examination show tuberculosis.

Several interesting cases have been reported to me personally of reactions following the ophthalmic test in apparently healthy individuals. One case was that of a physician who telephoned to me from a distant city, where he has a large private practice and a private sanatorium devoted to the treatment of tubercular disease. To assure a patient of the harmlessness of the conjunctival test he used it in his own eye, when to his horror a reaction occurred. In great alarm he telephoned to the writer for advice, which advice was to come to Philadelphia for a careful physicial examination. Dr. S. Solis Cohen examined the case with me. We found that the patient was overworked; that his general health was giving way under the strain; that he had a limited area of slight dullness in one of his lungs; and that several members of his family had died of tuberculosis. Under these circumstances we assured him that although he had no symptoms justifying a diagnosis of acute tuberculosis, the probabilities were in favor of his rapid decline and death if he did not at once drop his practice for a time and take proper rest and treatment. He went away sorrowful, as he felt that he could not afford to take such advice, but, being convinced as to its wisdom, he did finally follow it. Six months later he reported to me at the Atlantic City Meeting of the American Medical Association. He had completely regained his health, had added materially to his weight, and had returned to his work.

This case illustrates another phase of the subject to which the various authorities have not called any special attention; that is, the value of the tuberculin reaction in diagnosing doubtful cases. The physician just mentioned said that if the reaction had not occurred he could not have been convinced of the neeessity for making such a sacrifice in order to regain his health, and that he would doubtless have continued at work until forced to stop, when it might have been too late. These tuberculin reactions are therefore of great service to the physician in convincing doubtful patients and their friends of the necessity for proper treatment, and the fact that those who are apparently well sometimes react to the tuberculin does not in the least militate against the value of the test; it merely proves the presence of latent tubercular lesions.

Drs. Samuel McC. Hamill, Howard Childs Carpenter and Thomas A. Cope,[4] of Philadelphia, reported the results obtained in 134 cases in children under eight years of age. They found uniformity of reaction with the von Pirquet, the Moro, and the ophthalmo-reactions, but considered that all three were of less value in the diagnosis of the irregular forms of tuberculosis than had been hoped that they would be; they considered a negative reaction of more value than a positive one; that the type of the reaction bore relation to the type of the disease; and that the ophthalmo-reaction was sometimes followed by serious inflammation of the eye and even by loss of vision.

Nothing has been published in 1909 or 1910 to alter to any great degree the verdicts published in 1908. The ophthalmo-reaction has been quite generally abandoned, on account of the danger attending its use, yet in the hands of Baldwin, of Saranac, the results seem to be uniformly good. Baldwin uses a one-half of 1 per cent. solution of precipitated tuberculin, repeated if no reaction occurs, using a 1 per cent. solution in the other eye. He takes care to

confine the test to healthy eyes, and calls attention to the danger of using it in inflamed or diseased eyes.

3. *What is the Value of Typho-Bacterin or Typhoid Vaccine as an Immunizing and Curative Agent?*—The value of the injection of killed typhoid bacilli in immunizing armies is now generally recognized by most civilized nations, but its use by individuals about to visit regions infected with typhoid fever is perhaps a novelty. In a recent conversation with a former representative of the United States Consular Service in China, who was about to visit India, I learned, much to my surprise, that well informed laymen now consider it a wise precaution for persons to take immunizing doses of typho-bacterin before going to typhoid infested regions. And I learned more recently from a New England correspondent that the lay public is beginning to demand bacterial treatment from physicians for other disease besides typhoid fever.

Reports regarding the curative value of typho-bacterin are not sufficiently conclusive to warrant dogmatic statements. The following incident, however, illustrates the possibilities of this treatment. A most interesting letter recently received from a physician contained a clinical chart showing the remarkable results obtained by him in a case of typhoid fever. On the tenth day of the disease, after a temperature record of 104° F. for seven or eight days, with a pulse rate of 140, an injection of 40,000,000 killed typhoid bacilli was given. Within forty-eight hours the temperature had returned to normal and the pulse to 76, and there was no further rise of either. I am, of course, aware that one swallow does not make a summer, and that this case may be only a remarkable coincidence.

But such brilliant results are unfortunately apt to cause over-enthusiasm and disaster before experience has been gained, as is shown by the following history: A physician in a certain county became very much enthused on account of the remarkable results he had obtained in several cases with the bacterial treatment, and he told the good news to his professional brethren, who commenced to employ bacterial therapy without proper discrimination. Over-enthusiasm without proper precaution was followed by deserved disaster, but unfortunately the victim of his own experience blamed the disastrous results on bacterial therapy instead of on his own errors, and contributed to the county medical society a paper which led to the passage of a resolution condemning the use of bacterial vaccines in toto, and it will doubtless be some time before the members of that medical society realize that the fault is not that of bacterial therapy. In the meantime, physicians and patients are the losers.

4. *What is the Value of Neisser-Bacterin or Gonococcic Vaccine as a Remedy for Gonorrheal Affections?*—It seems to be generally agreed that in the treatment of gonorrhea the acute urethral cases do not require as large doses as do the chronic cases: also that arthritic cases require much larger doses than do the urethral cases. Allen "warmly recommends" the routine practice of giving to every acute urethral case one or two injections of from 75,000,000 to 150,000,000 gonococci as soon as the more acute symptoms begin to subside and the thick discharge to diminish. Allen states that convalescence was complete in two or three weeks, and that no secondary complications or backward extensions occurred in any of the series of cases treated in this manner.

One of my correspondents, Dr. W. R. Jamieson, president of the International Medical Association of Mexico, writes as follows: "I may say that I am having most excellent results with the Neisser-Bacterin, more especially since I have learned, mostly by bitter experience, to use it properly.

5. *What is the Value of Neisser-Bacterin as a Diagnostic Agent?*—Irons[5] states that the injection of 500,000,000 killed gonococci into the tissues of a person free from gonococcal infection was found to cause practically no constitutional disturbances in eight cases. In infected cases, however, the results were quite different. Within twenty-four hours, and corresponding to the negative phase, there was increased articular pain, tenderness, rise in temperature, and general malaise, the reaction being so pronounced that it was suggested that the injection of killed gonococci be employed as a diagnostic agent in cases of doubtful gonococcic infection.

It has been my fortune to learn the practical bearing of this fact in several cases. A Philadelphia physician was called to treat a patient who had been discharged from a hospital after

several weeks treatment of what was pronounced to be tubercular infection of both knee joints. The hospital treatment having been of no benefit, the physician tested the case with tuberculin, with negative results. A dose of 50,000,000 killed gonococci was then injected, against which there was a violent reaction, followed later by marked improvement in the condition of the patient.

Failure of reaction after injection of the dose used by Irons is not to be considered sufficient to justify the physician in pronouncing a case non-gonorrheal, as the following incident shows: A classmate of the writer's, a well known Phialadelphia surgeon, telephoned that he was at a loss how to proceed in a case of gonorrheal arthritis, in which doses of 300,000,000 killed gonococci had been of no benefit, although he had used this amount successfully in other cases. I advised that the dose be gradually increased until a reaction occurred, and that the treatment be then continued in doses just below the reaction point. Not until a dose of 2,000,000,000 was injected was a reaction obtained, after which the patient began to improve. Later on doses of 2,500,000,000 were required to keep up the improvement.

6. *What is the Value of Acne-Bacterin, Staphylo-Bacterin, and Staphylo-Acne-Bacterin as Therapeutic Agents?*—Acne-Bacterin is said to give better results in the treatment of comedones than does the Staphylo-Bacterin, while the latter appears to be preferred in acne indurata. Staphylo-Acne-Bacterin seems to give good results in acne of either type. Large and progressively increasing doses are often required, with persistent treatment for months. Allen recommends an initial injection of 250,000,000 killed staphylococci, soon increasing to 500,000,000, to 750,000,000, and to 1,700,000,000. The interval between injections varies from three days to a week or more. Allen reports a case which required a dosage of 4,000,000,000, at ten day intervals. He also states that in cases of deep-seated foci which refuse to come to a head—acne indurata—hyperemia by means of dry cupping is a very useful adjuvant to treatment with bacterial vaccines. Many cases of acne do well under treatment with mixed stock vaccines, albus, aureus, and citreus. Other cases apparently require treatment with autogenous vaccines.

I have received many requests for information regarding bacterial treatment of acne, which are invariably answered by advising that the Working Bulletins be carefully read, after thoroughly studying Wright's original papers and learning the principles of vaccine therapy as described by the master thereof. Attention is called to the necessity of using with the bacterin treatment the same treatment as would be used without bacterial vaccines. Especial emphasis is laid on the fact that Wright recommends hyperemia in connection with the use of bacterial vaccines. Many cases of acne are cured by bacterial therapy, but others have proved very stubborn. Treatment with combined staphylococcic vaccine has proved quite successful in the treatment of chronic furunculosis. Some physicians prefer to use the staphylo-aureus vaccine, as it is said that the greater proportion of the cases of acne are due to aureus infection. The fact that staphylo-strepto-coccic mixed infection occurs should not be forgotten.

7. *Is Stock Streptococcus Vaccine or Strepto-Bacterin of any Therapeutic Value?*—It is of course recognized that the streptococcus is not a single individual, this being the generic name for a large and heterogeneous class, the members of which are capable of producing the most varied forms of lesions. Yet, in spite of the frequent failures of bacterial therapy in streptococcic infections, excellent results are often obtained from treatment with stock vaccines.

A Philadelphia physician, with whom I have several times been in consultation, recently asked me for suggestions as to the treatment of a case of erysipelas involving the face, head and ear. The patient complained of headache, and the temperature was 103° F. Bearing in mind what Dr. Barton C. Hirst, of Philadelphia, had told me of his experiences in the treatment of streptococcic infection, using both anti-streptococcic serum and strepto-bacterin, and being of the opinion that the use of the bacterin increases the efficacy of the serum, I suggested the injection of strepto-bacterin, to be followed by the use of the anti-streptococcic serum, if necessary. Soon after the injection of the bacterin the temperature began to fall, and within twenty-four hours it registered 100° F. Another injection of bacterin was given, and within a few hours the temperature returned to normal, the eruption meanwhile fading away.

Referring to the combined treatment with serum and bacterin, during the past year there have been reported to me no less than six cases of streptococcic infection in which anti-streptococcic serum proved curative. The doses of 80 c.c. three or four times during the twenty-four hours employed by Dr. Hirst may seem excessive, but they are necessary to secure the desired results. If this dosage can be reduced by combining strepto-bacterin with the serum it will be very advantageous from the standpoint of economy, if for no other reason. Still greater advantages are to be obtained by using the bacterin first, as it may be found to be sufficient. It is, of course, necessary that a polyvalent bacterin or a polyvalent serum be employed. And, for reasons stated, one brand may prove efficacious and another one fail, as occurred in a case in which Dr. Hirst was called as consultant.

Theoretically, autogenous vaccines should always be used in the treatment of streptococcic infections, but this is not always necessary, as is shown by the experience of the Russian physician, Gabritschewsky, who reports good results with stock streptococcic vaccine as a preventive and curative in scarlet fever. His observations were made on more than seven hundred children. (For his extensive researches and confirmatory, you are referred to Roussky Vratch, 1905; Centrlbl. f. Bakt., Vol. XLI. (1906), pages 719, 844; Zlatogoroff, *ibid.* Vol. XLII. (1906), pages 77, 156; Langoway, *ibid*, pages 362, 463; Nidrigailow, *ibid*, pages 13, 102.)

8. *Of What Value is Strepto-Bacterin as an Immunizing Agent?*—It is believed by some physicians that strepto-bacterin may possess great value as an immunizing agent in prophylaxis against streptococcic infections. This claim is now being tested in the following manner: All the children in a certain school where two cases of scarlet fever had recently appeared have been treated by giving to each child a dose of 10,000,000 killed streptococci, with the hope of producing immunity and preventing an epidemic. The result of this treatment is being watched with much interest.

9. *Is Neoformans Vaccine or Neoformans-Bacterin a Cure for Cancer?*—Several years ago Doyen, the French surgeon, isolated from new growths a micrococcus which he believed to be the specific cause of cancer. The work of other investigators seemed to disprove that this micrococcus is the cause of cancer itself, but many believe that the intercurrent infections are frequently caused by the micrococcus neoformans, which is found in a large proportion of malignant new growths, especially those which are ulcerated. Wright and others have used neoformans vaccines in the treatment of ulcerated cancerous conditions, sometimes with remarkably beneficial results. Doyen is now using in Paris a treatment the nature of which he does not divulge in full, but it is supposed that neoformans vaccine is one of the products he employs.

A Baltimore physician who spent some months with Doyen reports that he is convinced that Doyen is obtaining good results, but he calls attention to the fact that Doyen uses fulguration before employing bacterial therapy, and that the latter is intended to prevent metastasis. Some reports received from physicians who are using neoformans vaccine in the treatment of inoperable cases state that it often removes the odor and makes the patient more comfortable.

10. *What is the Therapeutic Value of Pneumococcic Vaccine or Pneumo-Bacterin?*—Much interest is being aroused by the collective investigation of pneumo-bacterin in the treatment of lobar pneumonia. Dr. Timothy Leary (*Boston Medical and Surgical Journal,* November 11, 1909), calls especial attention to the following points: Early diagnosis; early administration of the bacterin; and the necessity of full doses, that is, injections of from 10,000,000 to 50,000,000, progressively increased in acute cases, every four to eight hours.

We are recently informed, however, that Dr. Leary has lately changed his dosage from the foregoing to 100,000,000 once in twenty-four hours.

It has been stated as an objection to this treatment that bacterial vaccines are not indicated in acute conditions, but Harris,[6] Willcox and Morgan,[7] MacDonald,[8] Martyn,[9] Batten,[10] and others, as well as Leary, are using the vaccine in acute conditions, with apparently beneficial results.

Much interest has been excited among the dentists by Goadby's[11] articles on the "Vaccine Treatment of Pyorrhea Alveolaris." He treated 47 cases, 36 of which were cured and 9 relieved. Leary[12] states in an article on the bacteriology

of pyorrhea alveolaris that he has studied about 100 cases of pyorrhea, in which he found a great variety of organisms, his most constant finding being the pneumococcus. Medalia[13] finds that 90 per cent. of his cases of pyorrhea alveolaris are of pneumococcic infection, with which the staphylococci and the streptococci are more frequently associated than are any other organisms. He also reports good results from bacterial treatment of such infections.

Sufficient evidence has not yet been accumulated to warrant a verdict either for or against this method of treating pyorrhea, but it is hoped that a remedy has at last been found for this most obstinate affection.

11. *What are the Causes of Failure in Bacterial Therapy?*—The following are some of the possible causes of failure in the use of bacterial vaccines:

(a) *Unrecognized Identity of the Infecting Bacteria.*—One of the most important factors in bacterial therapy is to know the identity of the infecting germ. This can be demonstrated by examination of the tissues or fluids of the infected zone, but many physicians in the country and smaller towns are not sufficiently posted in bacteriology to do this work or to recognize the identity of the infecting germ; and, rather than put patients who cannot afford it to the expense of going to some medical center for a diagnosis, they do the best they can under the circumstances and inject a stock bacterial vaccine of the kind they have reason to think is the proper one to use. That a certain proportion of such cases fail is not surprising.

(b) *Unrecognized Mixed Infection.*—One correspondent used Neisser-Bacterin in a case of cystitis of supposedly gonococcic origin, but without improvement in the patient's condition. A bacteriological examination revealed the presence of colon bacilli, and coli-bacterin was then used. This was followed by much improvement, but as a cure did not result another examination was made. This demonstrated the presence of gonococci in abundance; so treatment with the Neisser-Bacterin was resumed, and complete recovery followed.

Acne bacilli and staphylococci are frequently associated in acne; in broncho-pneumonia, pneumococci and staphylococci are generally present; staphylococci, streptococci, and other germs exist at the same time in tuberculosis, and mixed infection is said to be the cause of death in most cases. Friedlander's bacillus, micrococcus catarrhalis, staphylococci, etc., are found together in catarrhal affections. Mixed infection often requires a mixed bacterin treatment, and cases unsuccessfully treated with stock vaccines should not be pronounced failures until autogenous vaccines are used.

(c) *Failure to Bring the Freshly Opsonized Blood in Contact with the Invading Micro-organisms.*—Wright calls attention to the fact that failure may result if the blood with its opsonin, resulting from the injection of bacterial vaccines, is not brought to the area of infection. For this purpose he recommends rubefacients massage, Bier's method of hyperemia, exercise, etc. The importance of following this advice of Wright's is shown in the case of gonorrheal arthritis of both knees, previously mentioned in connection with the use of Neisser-Bacterin as a diagnostic agent. The case was of several months duration—having at first been thought to be of a tubercular nature—and on first using Neisser-Bacterin therapeutically there was very marked improvement. This improvement had ceased, however, and I was asked to see the case in consultation. As I found that the attending physician was provided with apparatus for producing hyperemia by the local application of heat I advised its use. The physician employed the electric light bath and obtained excellent results from its use, together with continued treatment with the bacterin.

(d) *Failure to Recognize that Bacterial Vaccines are Vegetable Drugs Differing Widely in Properties and Potency and Each Requiring Separate Consideration as to Method of Application and Dosage.*—The difference between bacterial drugs in regard to properties and potency is well illustrated by Tuberculin and Neisser-Bacterin. The initial dose of Tuberculin R. is .0001 Mg., gradually increased for effect, and unless great care is used dangerous reactions occur. The initial dose of Neisser-Bacterin varies from 100,000,000 to 300,000,000, and the reactions produced are comparatively mild. Both of these products vary widely in potency, which suggests the next reason why bacterial therapy sometimes fails.

(e) *Want of Standardization.*—Bacterial vaccines, like other vegetable drugs, require standardization to assure uniformity in character, quality and strength. This necessity is well

illustrated by Neisser-Bacterin. Injections of 50,000,000 produce marked reactions in some cases, while in other cases doses of 2,000,000,000, or more, may be administered before reactions occur. This wide range of dosage is to be accounted for either by the difference in the sensitiveness of the body cells of the individuals to stimulation, or by difference in the potency of the bacterin. Now, when it is considered that the tinctures of strophanthus on the market vary six thousand per cent. in potency, and that no two lots sent out are the same in strength unless standardized, the question is at once suggested, does not the same necessity for securing uniformity of products exist in relation to bacterial vaccines?

Standardization by counting the number of killed germs per cubic centimeter is not sufficient because the virulency of each bacterial culture is different. Standardization by weighing the amount of bacterial substance present is no better than standardizing a tincture of fluid extract by weighing the amount of extractive it contains. Standardization in either case requires the determination by chemical assay or physiologic test of the amount of activity the product possesses. There are no reliable methods for standardizing bacterial vaccines and tuberculins.

12. *What are Combined Bacterial Vaccines or Combined Bacterins?*—Combined vaccines or combined bacterins are mixtures of two or three kinds of pathogenic bacteria usually found associated in mixed infections. Staphylo-Bacterin as usually furnished is a combination of the three species of staphylococci, viz., *albus, aureus and citreus.* Staphylo-Acne-Bacterin is a mixture made by adding the acne bacilli to Staphylo-Bacterin.

In regard to the use of combined vaccines, Allen says: "In certain conditions, such as pulmonary phthisis, tuberculosis of the bladder and kidneys, and bones and joints, additional gravity is added to the case when to the primary infection secondary ones are added. All are familiar with the ease with which a case of early pulmonary phthisis or tubercular joint disease yields to appropriate treatment, and the difficulty of dealing with such a case when once staphylococci or streptococci have complicated the infection. Occasionally, it is true, great improvement follows the administration of tuberculin alone, but the best results will, I am convinced, be secured by either previously or simultaneously attacking the secondary infection. In these instances it is, as a rule, easy to ascertain the exact nature of this infection. In bladders and kidneys it is usually the Bacillus coli communis; in bones and joints, staphylococci or streptococci. Other forms of bacillary infection there are, however, such as pyorrhea alveolaris, gleet, and chronic tracheal catarrh, in which it is well nigh impossible to tell which out of the many different bacteria present are responsible for the condition. The only thing then to do is to employ 'combined vaccine'."

A correspondent recently called attention to the work of Dr. P. J. Pothuisje, of Denver, who is using Pneumo-Bacterin in conjunction with Tuberculin in the treatment of pulmonary tuberculosis. With patients whose temperature is so high that tuberculin is contraindicated, he uses Pneumo-Bacterin only, and in most cases this causes the temperature to decline, the cough to lessen, the weight to increase, and the general condition to improve, so that, after a short period of this treatment he is able to begin treatment with the Tuberculin.

13. *What is a Polyvalent Vaccine or Bacterin?*—Bacterial vaccines are said to be polyvalent (of many worths) when made from cultures containing a number of varieties of the same kind of bacteria. Strepto-Bacterin is a polyvalent vaccine made from a culture of streptococci which contains a large variety of streptococci.

14. *Are Bacterial Vaccines or Bacterins Harmless?*—The statement is sometimes made that bacterial vaccines are perfectly harmless. As a general rule it is safe to say that drugs which are "perfectly harmless" are perfectly useless. Bacterial vaccines or bacterins consist of killed pathogenic bacteria and their toxins. They are, therefore, toxins, not antitoxins or curative sera, with which they are frequently confounded by physicians unfamiliar with bacterial therapy. When the disease germs in any given infection are not causing sufficient stimulation of the body cells to generate enough specific opsonins and other antibodies to effect a cure, the use of bacterial vaccines will often prove of great therapeutic value. But if an overdose is given the injection is followed by a marked exacerbation of symptoms, due to a pronounced negative phase.

which may continue if the doses given are excessive or too frequently repeated.

According to Wright, if a proper dose of vaccine has been injected no clinical symptoms should be produced, even during the negative phase. But other authorities advocate the injection of doses large enough to produce a slight clinical reaction, manifested by a feeling of malaise, slight rise in temperature, etc., and no doubt there are times when it is proper to increase the dose until a slight reaction does occur, at least for the purpose of testing the activity of the vaccine. The time to repeat the injection is during the positive phase, which is clinically characterized by improvement in the character of the patient. Generally speaking, the intervals between doses should be from three to five days, to be increased to intervals of a week or two as indicated as the treatment progresses. Sometimes in acute conditions the injection may be repeated to advantage every twenty-four hours, and as the patient improves the intervals may be lengthened and the dose possibly increased. Used with proper precautions and in properly selected cases, it may be stated that bacterial vaccines are harmless, because when thus employed they not only do no harm but are distinctly curative in their action. When they are used without discretion, however, they are capable of doing harm, although fortunately the harm is slight and no serious results are to be apprehended. This statement, however, does not apply with equal force to all bacterial vaccines. Among the bacterial vaccines or bacterins to which it does not apply are the newer tuberculins, namely, "Tuberculin R" and "Bacillen Emulsion," the indiscriminate use of which is sure to be followed by disaster. Moreover, in the present state of knowledge concerning bacterial vaccines the physician who limits himself to fixed rules of dosage is bound to lose out.

15. *What are the Keeping Properties of Bacterial Vaccines and Tuberculins?*—In preparing bacterial vaccines Wright uses a temperature of 60° C. for one hour, to kill the bacteria. It has been recently suggested that bacterial vaccines be prepared by omitting the use of heat, the one-half of 1 per cent. phenol used as a preservative being considered amply sufficient to kill the bacteria. It is claimed that bacterial vaccines thus prepared are more active and keep longer, but I am informed that Wright sometimes uses vaccines two years old which have been prepared by the use of heat.

As regards tuberculin it is supposed that tuberculin "Old" keeps indefinitely, yet some observers claim that ointment made from it gradually loses its activity. However, I am informed by veterinarians that tuberculin "Old" reacts with cattle even when it is five years old, provided it is clear and odorless.

The keeping power of the newer tuberculins is also in question. Serial dilutions of tuberculin, especially the higher dilutions, are said to deteriorate gradually and to be unreliable after two or three months. Some specialists renew their dilutions once a month; others equally experienced use dilutions six months old. Conclusive evidence on this point is greatly needed.

Finally, I desire to call your attention again to the value of the Working Bulletin System as a method whereby the manufacturers of new materia medica products may place in the hands of the medical profession valuable information concerning these products. The manufacturers of materia medica products with their scientific departments are certainly in position to speak with authority in regard to the products themselves, but as they are not engaged in the practice of therapeutics they are not in position to teach the profession how to apply these products in the treatment of the sick.

The Working Bulletin System, therefore, if properly employed by manufacturing houses will consist of the publication of information relative to the manufacture and standardization of the products, also of abstracts from the reports of competent clinical observers, impartially selected from the medical press throughout the world, giving due credit to the authors and publishers, so that the original articles may be readily referred to.

I take pleasure in presenting to the library of the American Therapeutic Society a bound copy of Working Bulletins on Bacterial Vaccines and Tuberculins, as an example of this class of literature.

1. "Munchener medicinische Wochenschrift," 1908. No. 23.
2. "Munchener medicinische Wochenschrift," 1908. No. 20.
3. "New York Medical Journal," June 20, 1908.
4. "New York Medical Journal," June 20, 1908.
5. "Archives of Internal Medicine," Vol. I., No. 4, p. 433.
6. "British Medical Journal," June 26, 1909.
7. "Lancet," 1909, Vol. II., p. 471.
8. "Pathological Society," London, January 17, 1905.
9. "Southern California Practitioner," 1908, p. 162.
10. "Lancet," 1909, Vol. I., p. 1454.
11. "Lancet," 1909, Vol. I., p. 1875.
12. "Dental Cosmos," 1910, Vol. LII., p. 52.
13. "Boston Medical and Surgical Journal," 1910, Vol. CLXII., p. 42.

THE MANAGEMENT OF FRACTURES WITH SPECIAL REFERENCE TO COMPOUND FRACTURES.*

By J. S. RARDIN, M. D., Portsmouth, Ohio.

It is not my intention to burden you with a classical and scientific discourse on fractures in detail. That would require more time than is at our disposal. What I hope to do is to present some practical conclusions drawn from several years observation in this class of injuries.

Fractures constitute a large proportion of railway accidents. A money value is attached to each case of fracture because it represents loss of time from business and it may be a permanent disability and consequent loss of earning power to the individual, to say nothing of pain and deformity for life. They are, therefore, a fruitful source of trouble to the claim department. Consequently they should be skillfully managed, not only physically but psychologically.

Fracture of the skull is frequent as a result of a blow or fall on the head and should always be considered grave. The danger lies in consequent damage to the delicate structures inclosed therein and their relations to vital functions.

A man is found in an unconscious condition near the track. The nearest surgeon is called. He makes careful examination of the body and finds no marks of violence. Perhaps there is the odor of alcohol on his breath and the evidence of vomiting. A conclusion of drunkenness is very natural but a very dangerous one. Concussion from head injury may produce a similar group of symptoms. Make the patient as comfortable as possible and reserve your diagnosis and possibly preserve your reputation. All head injuries suffer more or less from concussion.

Unconsciousness from fracture of the skull may vary greatly from a slight vertigo to profound coma. It may begin and end promptly or its beginning may be delayed some hours and last indefinitely.

The study of the symptoms following head injuries will nearly always give a clue to the location and extent of damage. Paresis, paralysis or the loss of some function will nearly always locate the seat of trouble. The trephine and cutting forces should be used promptly to relieve a depressed fragment or compression from hemorrhage.

Fractures of the upper extremity are of less importance surgically than are those of the leg because of the part the leg bears in locomotion. A person with a fractured arm may go about and even do some kinds of work but not so with a fractured leg.

Of first importance is accurate diagnosis, for on this depends successful management. The location and direction of the line of fracture and the extent of damage to the surrounding structures should be carefully considered, the better to forestall future complications. To make correct diagnosis, an anæsthetic is most often required and the surgeon should use it unhesitatingly.

The X-ray is a most valuable aid in diagnosis. The chief thing to be regretted is that it is not more readily available. An X-ray apparatus that is readily carried about and can be used independent of electric current is a thing devoutly to be wished.

An imperfect or mistaken diagnosis is very dangerous to the reputation of the surgeon and also to the exchecquer of the railway company.

If the fracture be not an open one, a general bath followed by a hot shower, should precede reduction. If damage to soft parts has been great and symptoms point to the rupture of an important blood vessel and concealed hemorrhage, the wound should be opened under strict aseptic precautions, hemorrhage controlled, drainage provided and treated as a compound fracture.

In open fractures the risk from infection is greatly increased. Septic material is nearly always introduced at the time of injury. The condition for bacterial development is ideal. The damaged tissues and transfused blood offer the best possible menstruum. The greater the damage to the surrounding structures, the greater are the avenues open for septic invasion. Septic infection offers a grave menace to subsequent union. No precaution should therefore be neglected to prevent its inception.

An open infected fracture accompanied by extensive destruction to soft parts requires the keenest discrimination on the part of the surgeon to decide on the course of procedure. To determine the necessity of amputation calls out the finest judgment of the surgeon. Each case must be decided upon its own presentation of

*Read before the Association of Surgeons of the Norfolk & Western Railway, held at Norfolk, Va., May 4-5, 1910.

conditions. The amount of destruction of soft parts the integrity of the circulation, the probability of infection, the future care and environment of the patient are factors prominent in determining the necessity of amputation. A part once separated can never be restored. The preservation of a member though greatly disabled, is in most instances, preferable to any artificial devise. If doubt exists in the mind of the surgeon as to the necessity of amputation, give the patient the benefit of the doubt. His chances will not be greatly diminished by dressing the wound aseptically, applying artificial heat and awaiting results. Even if subsequent amputation be necessary, the patient, as well as the surgeon, will be better satisfied.

The emergency surgical case should contain the necessary material for treating compound wounds. The armamentarium is not necessarily extensive. Water is everywhere to be found and the means of sterilization can be provided. A fountain syringe or a syphon tube or a sterilized pitcher can be secured. A package of ethereal soap should be carried. These with a sterile finger or two will suffice.

Chemical bactericides, to be effective, are more or less corrosive and should be used with care or more harm is done than good.

If the wound be contaminated by dirty grease as often happens, gasoline may be used to cleanse it.

The intelligent and sensitive finger, properly used, is the most valuable means of diagnosis and treatment to be had, and is always at hand. Small and detached fragments are better removed. If it be the lower leg or arm, the associating bone may require a section to be excised to correspond in length.

The value of drainage in open fractures cannot be overestimated and is often the key that turns failure to success. Make use of gravity by making free counter openings. Gauze or rubber tubing or the cigarette roll will serve best for drains.

The ends of the bones should be brought into contact and there maintained. They should be covered by periosteum if at all possible.

The question of suture of the ends of the bones is of doubtful utility, except in a limited number of cases. They predispose to infection and if reduction has been well made they are not often necessary.

The close proximity to a joint adds to the gravity of the case though joint injuries are feared less since the aseptic era.

Moist dressings are advisable at first because evaporation therefrom aids drainage by capillarity, beside acting as an outside protection. Acetate of aluminum 1-25 or creolin a dram to a gallon are well adapted for this purpose and may be used freely.

After reduction, alignment and dressings are secured; measures must be instituted for maintaining the relations. Splints of various materials and shapes have been introduced. They should be of the simplest character and so applied as to cause the least possible discomfort to the patient. His pains are already hard to bear and should not be increased. Tight bandages not only add to his discomfort but may be a positive menace to recovery. Bandaging should always begin at the most distant point of the member and approach the body. Great care should be exercised in the application, that too great pressure be not made, especially the first day or two when swelling is most likely.

The surgeon of average constructive ability can, with the material at hand, devise a splint to suit the purpose better than most of the bungling and complicated ones offered him ready made.

The so-called ambulatory splints are excellent in theory, but most often disappointing in their applicability.

The points to be recapitulated are as follows:

1. The importance to the railway company in having fractures properly treated.

2. The necessity of accurate diagnosis and to this end the advisability of an anæsthetic.

3. Urge strict aseptic precautions in dealing with open fractures for therein lies much of the success.

4. The surgeon assumes a grave responsibility in advising amputation.

5. Splints should be of the simplest character and so applied as to offer least offense to the injured member, and tight bandaging is to be condemned.

108 *Gallia Street.*

The Southside Virginia Medical Association

Will hold its next meeting at Petersburg, Va., on June 28th, under the presidency of Dr. R. L. Raiford. Dr. E. F. Reese, of Courtland, Va., is the Secretary.

PREVENTION IN GENERAL PRACTICE A PLEA FOR MORE ATTENTION TO DETAIL.*

By ROY K. FLANNAGAN, M. D., Charlottesville, Va.
Health Officer of Charlottesville, and President Virginia Conference of Charities and Corrections.

The Doctors Position With Respect to the World.—As time passes and the serious purposes of life loom up before me, the reasons why, becoming clearer, and the futility of complaints against fate demonstrated daily in my sight, with eyes open upon multitudes of wrongs that can be righted, and needs that can be met, I daily thank God that it is my lot to be a doctor.

For the doctor whether he will or not *must* minister in some degree to these needs, being traditionally, educationally as well as morally, bound by hooks stronger than steel to the purpose of ameliorating the ills which afflict mankind.

The world contains many people who have not moved a step beyond the position indicated in Omar's wail—

> Into the Universe, and why not knowing,
> Nor whence, like water willy-nilly flowing
> And out of it as wind along the waste
> I know not whither, willy-nilly blowing.

Blowing hither and yon, asking foolish questions, or wrapping the cloak of their tiny needs or desires about them, and all the while dying men and women, oppressed children, flagrant wrongs and besotted ignorance, block up the pathway of life, so that even the satisfying of the little needs of the flesh is rendered more and more difficult and hazardous.

I say, I am glad I am a doctor of medicine, for the truth, that only in unselfish service to mankind can true satisfaction be found, might otherwise never have truly touched my life. The laborer cannot be blamed for his hand to mouth existence with no thought beyond his immediate need, neither can the artizan. It would be foolish likewise to call the farmer and the merchant to account for heeding only the things that intimately concern them, since the business of none of these strikes into the life and hope and aspiration of a suffering needy world.

But the doctor whose duty calls him always to face the woe of others is recreant, how terribly recreant to his trust, when the performance of that duty softens him not, nor attunes his ear to the universal cry for help, not alone help when in need, but help for the conditions which produce the need. In other words prevention of disease rather than having to expend energy, and time, and talent in efforts at cure of misery which ought never to have been.

The Custodian of the Keys to Health.—The medical profession now, alone holds the keys to the health aspect of the uplift of the race, and the unlocking of the doors and the opening of its chambers is a function which the doctor must perform, or if the signs of the times are correctly read, other hands will pluck these keys from his fingers to his everlasting discredit, and throw him aside in the onward sweep to the inevitable goal of human hopes. That as busy medical men we may not fail of our duty for the lack of a brotherly word. It is my purpose at this time to stress some of the phases of preventive medicine.

All of us know about these preventive measures, but few of us act as though we fully realized the importance of insistence upon detail in the application of this knowledge, and consequently much of our advice goes to worse than waste, take for instance—

The Prevention of Typhoid Fever.—A case occurs, the doctor comes, examines, diagnoses and prescribes, asks about the water and the milk supply, casts a hurried eye, may be, about the premises, advises the use of lime and carbolic acid, for the hands and discharges, reports the case to the Health Officer in a week or ten days, perhaps, and usually from a hygienic standpoint, this is all.

The privy, the stable, or the pig pen, frequently all three, may be on the slope above the well. The privy in any event is always fully accessible to chickens, pigs and dogs, whose foot prints, loaded with typhoid baccilli, mark the drain that most often lies beneath the kitchen window and furnishes the favorite feeding ground for the peripatetic denizens of the barnyard, from thence that ubiquitous flying machine for the typhoid germ. The house fly, quickly transfers his passengers to the food waiting to be served to the family, the vicious circle is thus soon completed and another sick one adds his ailment to the sum total of human misery.

No doctor has ever done his full duty to a

*Read before the Piedmont Medical Society, April 16, 1910, Orange, Va.

family in which he is called to attend typhoid fever, until he has personally inspected, as far as possible, every place through which the disease may have come. He should insist that the outhouses be taken from the water shed of the well, that the privy be made fly-proof and sanitary, that the breeding grounds of the fly be disinfectetd or removed, the bed-room, dining-room and kitchen be screened, and every possible avenue of infection closed and kept sealed.*

In this connection, it is the doctor's part to be sure that there is such a thing as a privy on the premises. The State Health Department is authority for the statement that 60 per cent. of the farms in Virginia are absolutely without the most primitive earth closet. Is it a wonder, therefore, that typhoid fever and hook worm disease are rampant in the State? These two diseases are absolutely dependent for their spread upon the careless disposal of human feces. I lay, therefore, upon the hearts and consciences of you who daily face such condition the bounden duty of forcing a correction of such a disgrace. For when the wide spread pollution of our soil has stopped then hookworm anemia and typhoid will have been banished forever.

Tuberculosis Prevention.—I am not too severe I think when I say that in the prevention of tuberculosis the average doctor has also been found shiftless and inefficient, as compared with what might reasonably be expected of him from his knowledge of causes and cure.

There are mitigating circumstances to be sure, for it takes a very high degree of moral courage to tell a man, especially if he be a friend, that consumption has begun its ravages and insist that he take every precaution against spreading it.

If this disease is to be controlled, the doctor must meet this responsibility squarely. The first step in the prevention of tuberculosis must be thorough equipment for early recognition—the latest methods of physical diagnosis are within reach of all. Those who have taken the cure, and every community now, has several, are thoroughly posted along this line and it is greatly worth while to question them. The various societies and associations fighting the disease will furnish sheaves of valuable information for the asking.

In season and out of season the doctor must emphasize the danger of the spitting habit, and be the circulating medium for all of the literature on the subject, he can get his poeple to read. Every home where consumption has been should be fumigated as thoroughly as after smallpox, every man, woman and child who has lived in direct contact with it for any length of time should be suspected of having it and should be carefully examined for it.

Look then for tuberculosis in every run down patient and in a large proportion of the others under your charge, and let the protection of the well be the major consideration in dealing with every home where consumption is found. The dead must bury their dead; the care of the living, if it is not now, must become the doctor's gravest concern.*

Small-Pox Prevention.—Turning to smallpox, I have little to say. Every doctor is careful to adopt quarantine measures with regard to it, and all physicians worthy of consideration, are advocates for vaccination. Our freedom from epidemics of small-pox in later years, however, is tending to renew the danger of them, in the large crop of unvaccinated individuals now arising in every community. The profession must strenuously back up the State Department of Health in its efforts to require the vaccination of every school child regularly and systematically.

Scarlet fever and diphtheria are diseases which I will barely touch upon. You know their contagiousness and the danger of their spread, and I can only urge that you apply this knowledge rigidly and with close attention to the details necessary to avoid carrying the germs of these diseases in your clothes to others, and preventing the spread of them in the schools by reason of contact cases. Take no chances that can possibly be avoided.

The diseases just mentioned are usually gross in their manifestation and unmistakable in their infectious character, therefore, they could not be passed by in any discourse on preventive medicine. But it is not upon them that my main emphasis at this time is laid.

There are diseases which come under every doctor's observation as regularly as the seasons roll around, which, in the aggregate, cause more anguish of mind, bodily suffering and loss of

*Paper read by Dr. L. L. Lumsden on Typhoid Prevention, Transactions Medical Society of Virginia, 1909.

*Read Truman A. Parker, M. D., on Practical Observation on Early Diagnosis of Tuberculosis. Transactions Medical Society of Virginia, 1909.

time, if not death, than typhoid fever and tuberculosis, small-pox, and scarlet fever altogether.

Summer Diseases of Children.—First of these the most deadly by far is the summer diarrhoea of infants under whatever name called—cholera infantum, gastro intestinal catarrh, entero-colitis, intestinal indigestion, green diarrhoea of teething, a veritable Herod in its slaughter of the innocents. More children die from its ravages than from all other causes combined. It comes under a different head from most infectious troubles in that just plain every day, conglomerate filth is its cause in 99 cases out of 100—not one specific germ but 1,000 different germs and all together. Improper handling of the baby's food supply is almost invariably at the root of the trouble; whether in the act of milking the dirt gets in, or in the washing or non-washing of the milk vessels; whether from the soiled hands of a dirty parent, or dirtier servants; whether from bottle, nipple, spoon or cup—the poor helpless, dependent babe gets its quietus and passes in many instances lingeringly into the great beyond.

By some, it may not be considered the business of the doctor to go out of his way to cut off such a large proportion of his summer practice by stopping that state of things, but I have yet to see the doctor who advanced such ideas. Then let not detailed instruction be wanting as regards the preparation and handling of baby's food. See how the mother does it, see where she keeps the milk, don't trust the nurse, and if conditions warrant go to the barnyard and watch the milker's methods. Every young mother should be carefully instructed in these things, give her a leaflet inculcating the principle underlying your advice, and fear of consequences, may, if the grannys be kept away, enable her to raise her child.

Prevention of the So-Called Mild Contagious Diseases.—I turn now to a class of ailments not ordinarily serious in themselves, but whose sequelæ mark them among the most dangerous diseases in the catalogue. Though actively contagious they are rarely, if ever, isolated, and wide spread epidemics of them are looked upon as a visitation of Providence by the laity, while the medical profession in apparent indifference watches the scourge do its work without lifting a hand. The old idea that every child must have whooping cough, measles, mumps, chicken-pox, and pink-eye, and is to be congratulated if it can add scarlet fever, diphtheria and erysipelas to the repertoire, is a relic of an age that antedates the acceptance of the germ theory, and the doctor who fosters such belief among his clientele, has by that same token gone over to the enemy and become an advocate for needless suffering among the innocent and unprotected. I, therefore, urge upon you as a duty transcending most of the duties of the doctor, the necessity of observing rigid precaution in all contagious diseases, it matters not of how mild a character. I know you are busy men, and this may sound very impractical, if not trivial, but statistics prove that whooping cough is one of the most fatal diseases in the calendar, and that measles, with its crop of weakened eyes, deaf ears, and injured kidneys is ruinous in the extreme.

The first case of these diseases usually comes under some physician's eye. I ask, in all candor, should the whole community suffer from an epidemic whose results are so far reaching, when the doctor has the power to confine the disease within the limits of its first place of visitation? The public is unawakened as yet to these facts, but with the help of the conscientious doctor these infant scourges are destined to gradually disappear.

Prophylaxis of Grippe.—Leaving these troubles of children, I would call your attention to the prophylaxis of grippe. Did you ever hear of isolating grippe? Why not? It is about the most painful, acutest and most diabolically searching of all the ills that come under the doctor's care—the most contagious disease I know, predisposing always to a second attack, becoming as terrible in its sequelæ as any disease in the catalogue. It is the most deceptive in its promise of recovery and the most dilatory in its performance, as Mr. Dooley aptly remarks:

"That disease which kapes you sick six months after you are well."

The epidemics of this disease recur with the advent of the season and nothing is ever done to check the spread of its ravages. Are we as serious in our purpose to prevent disease as we are in our efforts to cure? Then let us remember the contagiousness of grippe and isolate it where possible; use antiseptics freely during attendance, and fumigate afterward.

Lues Venerea.—In leaving the subject of grippe I again challenge your seriousness of purpose, and this time with respect to a condition which in the extent of its scope and the horror of its consequences, has assumed the proportions of a burning shame. I allude to the absence of the least shadow of preventive medical principles applied to venereal disease. We boast of the advance of scientific principles in the world, yet in this regard we are 3,000 years behind the times as laid down in the Mosaic law in the fifteenth chapter of Leviticus. May I quote a few verses?

Leviticus, chapter 15: "Whan any man hath an issue out of his flesh, because of this issue he is unclean and this shall be his uncleanness in his issue: Whether his flesh run from his issue it is his uncleanness. Every bed whereon he that hath the issue lieth shall be unclean, and everything whereon he sitteth shall be unclean, and whosoever toucheth his bed shall wash his clothes and bathe himself in water, and be unclean until the even. And he that sitteth on anything whereon he that hath the issue sat, shall wash his clothes and bathe himself in water, and he that toucheth the flesh of him that hath the issue shall wash his clothes and bathe himself in water, and if he that hath the issue spit upon him that is clean, then he shall wash his clothes and bathe himself in water, and what saddle soever he that hath the issue rideth upon shall be unclean, and whosoever toucheth anything that was under him shall wash his clothes and bathe himself in water, and whomsoever he that hath the issue toucheth without having wrinsed his hands in water, he shall wash his clothes and bathe himself in water, and the earthen vessel which he that hath the issue toucheth shall be broken and every vessel of wood shall be wrinsed in water, and when he that hath the issue is cleansed of his issue then he shall number seven days to himself for his cleansing, and wash his clothes; and he shall bathe his flesh in running water and shall be clean."

Does this sound ridiculous to you who know the virulence of the gonococcus germ? And still we, with our vaunted knowledge have not reached the point of reporting to the health authorities the cases that we see.

Does classifying syphilis as leprosy and circumcising every male, as the old Hebrew did, seem severe and unnecessary in the light of our present-day knowledge? And yet we enlightened physicians, the world over, take as our ethical principle an attitude of secrecy promulgated by an old Greek 500 years before Christ, the unmodified application of which principle has resulted in the degeneration of the Grecian race and in the making of Europe a reeking hot bed of syphilis, while under the Mosaic law the Jew still stands, nationally, the cleanest, healthiest strain of blood on earth.

Statistics.—Dr. Prince A. Morrow says that 80 per cent. of males between the ages of 18 and 30 contract gonorrhea, a large percentage of whom never fully recover; that 75 per cent. of operations on women for inflammatory diseases are due to gonococcus infection. Is not this a state of affairs to set us to thinking whether or not we have been guilty of contributory negligence in sacredly guarding the secrets of men who are worse than lepers in their effects upon the community, and whose infected bodies blast the lives of so many wives and potential mothers?

The Hippocratic Oath.—I want to defend old Hippocrates from the charge of doing intentional harm when he said in the Classic Oath, "Whatever in my professional practice or not in connection with it I see or hear in the life of men which ought not to be spoken of abroad I will not divulge, as reckoning that all such should be kept secret," for I subscribe absoltely to this part of this oath. But I do wish, however, to inveigh against the application which medical men since his day have made of this principle.

They have sacredly guarded the reputation of those who have voluntarily smirched their own characters, and they have given their protection to these men at the expense of trusting women whose right to health and happiness has been forever jeopardized.

Health Department Supervision of Secret Diseases.—I do not wish to be misunderstood. I am not advocating a loose-tongued profession, but in my judgment it is time for us to put ourselves on record as being in favor of health department supervision of syphilis and gonorrhea.

This may seem radical, but the time is approaching when the shielding by a doctor from the scrutiny of health officials of the luetic

blight of a debauchee will be looked upon in a more serious light than the hiding of a case of small-pox or diphtheria.

The sociologist is taking up these questions and is gaining the ear of the world, the advocating of the physical examination of candidates for matrimony, and the unsexing of the insane and the criminal by vasectomy is but another step in basic prophylaxis which will give us a healthier and a longer lived race.

Sex Instruction.—Another measure of prophylaxis I would offer to your attention. The instruction of children in hexual hygiene is eventually to be a necessary part of their education, to give boys that proper respect for themselves and for their own virginity that is deemed so necessary for their sisters, and which will ensure, if not a virtuous life, at least a knowledge of the consequences of unchastity, which knowledge, though it almost always comes—most often comes—through muddy channels, and then too late.

The Doctor's Duty to Preach Purity.—I conceive it to be the doctor's duty to preach this gospel. We know that it is no more necessary for a man to be impure than it is for a woman to be; we know that man's loose conduct in this regard is a consequence of habits found in youth. It is ours, then, to be the missionaries who will open the eyes of the young to the sacredness of the function of reproduction, and inculcate the principles of continence and virtue at the most impressionable age.

Hitherto there has been so much of diseased and dilapadated manhood in the world which the doctors have been busy curing and repairing that they have only just cleared the deck sufficiently to get a perspective of the greater work that lies before.

They have been pioneers clearing up the underbrush and weeds which hamper the growth of clean and healthful lives. The preservation and conservation of these lives naturally falls upon the doctor's shoulder, since he alone is qualified, and he must bear the burden. It has been the glory of the medical profession that they have never shirked their responsibilities, and I for one fear not that they will rise grandly to the obligation to conserve this greatest national resource, the health of people.

Book Notices.

Vital Economy. By JOHN H. CLARKE, M. D., New York. Newold Publishing Co. 1909. 12mo. 119 pages. Cloth, 50 cents.

This book contains nine short chapters on "how to conserve strength," by the prudent use of baths, enjoyment of fresh air, exercise, etc. The effects of the improper uses of stimulants, tea, coffee, etc., are pointed out. Avoidance of worry is an essential in the conservation of strength. It is a book for the public rather than the doctor, and if properly read, will do an immense deal of good.

Practical Medicine Series. Under General Editorial Charge of GUSTAVUS P. HEAD, M. D., Professor of Laryngology and Rhinology, Chicago Post Graduate Medical School. Vol. X. Nervous and Mental Diseases. Edited by HUGH T. PATRICK, M. D., Professor of Neurology, Chicago Polyclinic; and CHARLES L. MIX, A. M., M. D., Professor of Physical Diagnosis, Northwestern University Medical School, etc. Series 1909. Chicago: Year Book Publishers. 12mo. 248 pages. Cloth, $1.25.

This volume completes the 1909 series of ten volumes a year. In keeping with other volumes of the year, it well presents the annual progress in nervous and mental diseases.

Some Scientific Conclusions Concerning the Alcoholic Problem, and Its Practical Relation to Life. Senate Document No. 48. 8vo. 179 pages.

This pamphlet contains the "papers read at the semi-annual meeting of the American Society for the Study of Alcohol and other Drug Narcotics, at Washington, March, 1909." This is the first Transactions of a Medical Society ever published by the government. Copies can be had through requests to the United States Senators. Dr. T. D. Crothers, of Hartford, Conn., is Secretary of the Society. It is impracticable in small space at our command to give even a running synopsis of the contents, further than to remark that it contains twenty-four papers by some of the ablest of American writers, giving the results of laboratory researches, special causes and conditions favorable to the growth of alcoholic inebriety, questions relating to the public care of inebriates, general and special form of treatment of inebriates, and papers relating to the alcoholic problems in its sociological, physiological and medical aspects. It is the strongest set of pa-

pers in favor of the great temperance wave now pervading the country that we have seen.

Preparatory and After Treatment in Operative Cases. By HERMAN A. HANBOLD, M. D., Clinical Professor in Surgery, and Demonstrator of Operative Surgery, New York University and Bellevue Hospital Medical College, etc. With 429 illustrations. New York and London. D. Appleton & Co., 1910. 8vo. 650 pages. Cloth, $6.00

The title clearly sets forth the scope of this book. In hospital work, where there are trained surgical internes and nurses, it is an excellent guide book. But it is of more especial service to the family physician who has to call in the assistance of a surgeon from a distance. While, from the surgeon's standpoint, the details are perhaps trite, they are none the less essential in preparation of the patient, and in the after-treatment—the responsibility of which is to rest on the physician after the surgeon returns to his home. Contraindications for major-surgery, if such can be postponed, are named, such as bronchitis, tuberculosis, neprhitis, cardiac and arterial diseases, rheumatism and gout, syphilis, hemophilia, alcoholism, tobacco heart, morphin, cocain, etc., habits, obesity, diabetes. The details for preparation of patient and surroundings are given so explicitly that he who follows the directions will do his full duty to both patient and surgeon.

Diseases of the Genito-Urinary Organs. By EDWARD L. KEYES, Jr., M. D., Ph. D., Clinical Professor of Genito-Urinary Surgery, New York Polyclinic Medical School, etc. With 195 illustrations and 7 plates—4 of which are colored. New York and London. D. Appleton & Co. 1910. 8vo. 975 pages. Cloth, $6.00.

All older practitioners accord to the father of the present author a position of pre-eminence as authority in venereal diseases, whose work was first published in 1874 as "Van Buren and Keyes," and passed through many editions. The present volume, however, is practically a new work, and brings the subjects of study well up to date. Special emphasis is laid upon the causation of many of the chronic troubles of the genito-urinary organs, and due cautions are brought out as to declaring one cured of a venereal disease—especially gonorrhea—when it is only in a latent condition. The importance of ureteral catheterization, and of the X-ray in diagnosis are well brought out. All of the surgical diseases of the genito-urinary system, such as renal and vesical calculi, etc., are treated of in detail. Gonorrhea in the female and conditions peculiar to the female urinary organs, etc., are well described. This book, because practical in its teachings as to all that relates to venereal diseases and their effects, as well as because of the many surgical diseases of the genito-urinary organs, must long be recognized as the standard authority on the subjects of which it treats.

Nutrition and Dietetics. By WINFIELD S. HALL, Ph. D., M. D., Professor of Physiology, Northwestern University Medical School, Chicago, etc. New York and London. D. Appleton & Co.. 1910. Small 8vo. 315 pages. Cloth, $2.00 net.

This is a practical, useful manual for practitioners as well as students of medicine, for trained nurses in institutions and in private homes. After explaining the action of foods in general for purposes of nutrition, this manual classifies their relative values in health—from infancy to old age, the work of different organs in the body in their assimilation in the body. It then selects the dietary for different diseased conditions, and points out what should be avoided in certain diseases, etc. A number of general recipes for the preparation of beverages, liquid foods, semi-solid and solid foods are appended, which the intelligent nurse or housewife may modify to suit existing conditions. If this notice would only induce the practitioner to consult the pages of this manual before he issues his *ipse dixit* as to what may be taken and what should be avoided in the sick room, many hardships by the patient would be averted. In every respect, this is an excellent book.

Elements of the Science of Nutrition. By GRAHAM LUSK, Ph. D., Sc. D., F. R. S., Professor of Physiology, Cornell University Medical College, New York. Second edition. Revised and enlarged. Philadelphia and London. W. B. Saunders Co. 1909. 8vo. 402 pages. Cloth, $3 net.

This book is too closely a *scientific* discussion of nutrition to be consecutively read by the general practitioner. The chapter on a "Normal Diet," it is true, may be an exception. In fact, even this chapter would not prove as valuable as it is were it not for the Appendix to the book which contains Atwater's valuable tables as to the food values of meats, cereals, fruits, vegetables, etc. The book is too technical, without a sufficiency of *practical* illustrations in explana-

tion of the text; for no memory can retain the exact composition of various foods. It would have much helped the general usefulness of the book had much of its technicalities been written more from the practical standpoint. For the professor, etc., it may be all right; but only a small minority of the profession have such qualifications.

Practical Hydrotherapy. By CURRAN POPE, M. D., Professor of Physiotherapy, University of Louisville, Superintendent Pope Sanatorium, etc. 8vo. 646 pages. With 128 illustrations in half-tone. Cloth, $6. Cincinnati Medical Book Co. 1909.

Anyone at all interested in the subject of hydrotherapy—whether as a specialist or as a general practitioner—will find in this book the information he desires. The author, after twenty years of personal study and practical applications of water in the treatment of disease, is enabled to point out the cases or conditions in which its utility is proven, and also the false claims of some as to its uses. Methods and details of application are given, and many chapters are given as to the diseases in which it is especially applicable—how to apply hydrotherapy and points out when to let the patient rest. For those connected with hydriatic institutions, this is invaluable as a text-book. For those in private practice, when all the equipments of a sanatorium are not available—such as in fevers, etc.—good, practical advice is given. Reference to a subject is easily made by means of the 48 pages double column index.

Editorial.

Commencement Exercises of the Two Medical Schools at Richmond, Va.,

Were announced through most attractive embossed leather covered programs. These exercises were the means of introducing to the public more than fifty young M. D.'s, in addition to the graduates in dentistry and pharmacy. The finals of the *University College of Medicine* and the *Medical College of Virginia* coincided, caused an influx to the city of many prominent doctors, a large number of the alumni of both schools, besides invited guests, taking advantage of this opportunity for a "good time."

University College of Medicine.—Rev. Dr. J. N. Latham, of Centenary Methodist church delivered the annual sermon before the graduating class on the evening of May 15th. The following morning clinics were held at the Virginia Hospital, and Dr. Stuart McGuire, president of the college, tendered members of the graduating classes, alumni and faculty a reception at his residence that evening. Among other social features enjoyed were a smoker at the Hermitage Club and a reception by the faculty at the Westmoreland Club after the conclusion of the commencement exercises. At the exercises, held in the auditorium of the John Marshall High School building, Major J. C. Hemphill, editor of the *Times-Dispatch,* Richmond, was orator. Discussion of the campaign for raising the necessary funds for rebuilding and equipping the college, which was destroyed by fire in January last, was met with decided enthusiasm, and it is hoped to start the session of 1910-1911 with a thoroughly up-to-date institution. Dr. Hugh G. Nicholson, Charleston, W. Va., is president-elect of the Alumni Association for the coming year.

Medical College of Virginia.—The finals of this college were opened with the baccalaureate sermon by Rev. Dr. Russell Cecil, of the Second Presbyterian church, on the evening of the 15th. Clinics and demonstrations at Memorial Hospital filled the mornings of the two following days, with a class reunion supper at Hotel Richmond on Monday evening, and an adjunct faculty smoker in the pathological laboratory Tuesday. Dr. Simon Baruch, New York, of the class of 1862, delivered an address on "Therapeutic Lessons of Half a Century" at the meeting of the Alumni Society on Wednesday, which was followed by a luncheon. At this meeting he was elected president of the Alumni Society for the ensuing year. The commencement exercises took place that evening at the Academy of Music, Dr. Lyon G. Tyler, of William and Mary College, making the address of the evening.

Hospital Appointments

Recently announced at the commencement exercises of the Richmond (Va.) medical schools were as follows:

University College of Medicine: For the Virginia Hospital—Drs. A. L. Herring, T. G. Faulkner, J. T. Ramsey.

St. Luke's Hospital—Drs. J. H. Smith, G. H. Macon.

City Home, Richmond—Drs. J. W. Turman, C. C. Franken.

Retreat for the Sick—Dr. C. C. Hudson.

Sheltering Arms Hospital—Drs. J. B. Dalton, E. E. Watson.

Flushing Hospital, Flushing, N. Y.—Drs. D. A. Dunkley, E. N. Davidson.

Virginia Home for Incurables—Dr. W. M. Brunet.

Rutherford Hospital, Rutherford, N. C.—Dr. H. C. Chase.

Medical College of Virginia: For Memorial Hospital—Drs. J. C. Bell, A. C. Broders, W. H. Evans, G. B. Martin, J. S. Weitzel.

City Home, Richmond—Drs. Ward Harshbarger, W. O. Tune.

Johnston-Willis Sanatorium—Drs. M. J. Alexander, C. H. Fowlkes, G. R. H. Long.

Orthopedic Hospital, Philadelphia—Dr. C. J. D'Alton.

King's County Hospital, Brooklyn—Dr. L. H. Lewis.

Protestant Hospital, Norfolk—Dr. L. C. Ferebee.

Sarah Leigh Hospital, Norfolk—Drs. A. T. Sheffield, O. W. Ward.

St. Vincent's Hospital, Norfolk—Drs. A. A. Burke, G. W. Hayes, and E. W. Rawls of class of 1909.

St. Leo's Hospital, Greensboro, N. C.—Dr. W. T. Potter.

C. and O. Hospital, Huntington, W. Va.—Dr. R. H. Dunn.

The Medical Society of Northern Virginia and the District of Columbia

Held its annual meeting at Manassas, Va., May 18th, Dr. Stephen Harnsberger, of Catlett, Va., presiding. A number of interesting papers were read by doctors from Virginia and the District. The success of this meeting, which was pronounced "the most successful meeting in the history of the society," was due to the untiring work of the retiring president and to Dr. Charles S. White, Washington, D. C., secretary-treasurer.

The following officers for the ensuing year were elected: President, Dr. A. Barnes Hooe, Washington; Vice-Presidents, Drs. E. L. Detwiler, Herndon, and Powhatan Moncure, Bealton; Treasurer, Dr. F. M. Brooks, Swetnam; and as the new Constitution and By-Laws adopted at this meeting, called for separate secretaries, Drs. Charles S. White, of Washington, and A. G. Coumbe, of Vienna, were elected corresponding and recording secretaries, respectively. The next meeting of the society will be held in Washington, D. C., November 16, 1910.

The Association of Surgeons of the N. & W. Railway,

Which met in Norfolk, Va., May 4th, elected Dr. Southgate Leigh, of Norfolk, President, and Dr. J. R. Garrett, of Roanoke, Va., secretary-treasurer. Dr. T. M. Baird, who has moved to Smithfield, Va, off the line of the Norfolk & Western Railway, and who has filled the latter office most efficiently for years, was made an honorary member. The place and time of next meeting will be determined later by the Executive Committee.

The American Journal of Physiologic Therapeutics, Chicago,

Which made its first appearance in May, is a new bi-monthly periodical, neatly bound, and well indexed. The articles are limited to subjects included under the head of hydro-electro-therapeutics, and under the editorship of Dr. Henry R. Harrower, and a most able corps of associate editors we predict a successful future for the journal. Price $1 per year.

Schering & Glatz,

Who, for the past forty-three years have conducted business in the same section of Maiden Lane, New York, on July 1st will move into a new home at 150-152 Maiden Lane, several blocks from their present location.

Dr. T. C. Firebaugh,

Of Harrisonburg, Va., was recently appointed by Governor Mann to fill the vacancy on the Virginia State Board of Health caused by the death of Dr. S. P. Latane.

Dr. Samuel W. Maphis,

Warrenton, Va., has been elected Councilor for Eighth Congressional District, Medical Society of Virginia, his term of office to begin near the close of the Norfolk meeting.

X-RAY PHOTO. NO. 1. ILLUSTRATING CASE NO. 1. SEE PAGE 97.

X-RAY PHOTO. NO 2. ILLUSTRATING CASE NO. 3. SEE PAGE 98.

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Original Communications.

FRACTURE-DISLOCATION OF THE SHOULDER JOINT.*

By A. R. SHANDS, M. D., Washington, D. C.
Professor Orthopedic Surgery, George Washington University, Washington, D. C.

It is not the purpose of the writer to give an essay on the subject of fracture-dislocation of the shoulder joint, but to report my experience in the management of five recent cases. It is most interesting to me that these five cases should have come under my care in the first five months of the present year (1909). This must be an unusual experience with any surgeon. I had not seen such a case for several years before the first one of this series came to me. Another singular feature of this experience is that the first three of these patients met with the accident in the same community—two in the city of Danville, Va., and the other one within a few miles of that city, and all three accidents occurred in the same week.

In looking up the literature on the subject of fracture-dislocation of the shoulder joint in the text-books on general surgery, I find that but very few of the books mention the subject at all, while others do not treat the subject with anything like adequate importance. It is only in the special text-books on fractures and dislocation that one finds much aid on the subject, and then in a very general way, as though every surgeon would know just the best thing to be done. I assure you I felt very differently in approaching the management of these cases. In the treatment of these cases, I did just what I thought was best suited to the individual case.

The only literature on the subject I have been able to obtain that dealt with it in anything like an adequate way is a paper by Dr. H. A. Royster, Raleigh, N. C.—a most excellent and exhaustive one—published in the *Journal of the American Medical Association,* August 10, 1907. I would have given a great deal to have been familiar with this paper before I had to tackle these cases. I know Dr. Royster very well personally and, being familiar with his excellent work, I very heartily commend this paper as a guide to any one who feels the need of assistance in handling such cases.

Case I.—Diagnosis: Downward and inward dislocation of the head of the humerus, complicated with a fracture of the anatomical neck and comminuted fracture of the upper end of the humerus. (See X-ray No. 1.)

W. A. J., aged 67 years, was brought to me for treatment by Drs. C. T. Carter and James S. Irvin, of Danville, Va., January 13, 1909, giving the following history: About four weeks previously he fell down three or four steps and produced the above described injury. The day following the accident Drs. Carter and Irvin attempted to reduce the dislocation without success; a second attempt was made a week later with a like result. As soon as the patient's consent was obtained they brought him to me for treatment.

I at once had the X-ray above referred to made, which clearly indicated that only very radical operative measures would avail anything for the real benefit of the patient. The following day, January 4th, assisted by Dr. Irvin, I removed through an anterior incision about four inches long along the inner border of the deltoid muscle, the head of the humerus, which was practically free from any attachment; only a very small part of the joint capsule joined it with the broken fragments of the humerus, also four fragments of the upper end of the humerus, the largest fragment being about three inches long, which was the tuberosity and a part of the shaft extending

*Read before the American Orthopedic Association, Washington, D. C., May 5, 1910.

some distance below the surgical neck. This is well shown in the X-ray. The other fragments were all small, none larger than the first phalanx of the index finger. After thoroughly irrigating the wound with a weak bichloride solution and removing a considerable amount of lacerated tissue, the fragments of the capsule and such other tissue as could be made available were gathered together with a purse-string suture of catgut over the glenoid cavity; the end of the humerus was then forced up against the cushion thus made over the glenoid cavity. The wound was closed without drainage with perfect primary union resulting. The dressing applied consisted of a strap of adhesive plaster about three inches wide extending from the top of the shoulder down the posterior aspect of the arm around the elbow with the forearm flexed to a little above a right angle and up the anterior aspect of the arm, back to the starting point. While the plaster was being applied sufficient force was used to press the end of the humerus firmly against the cushion over the glenoid cavity above described. The limb was put up in an abducted position by means of a thick triangular axillary pad with the fingers pointing to the top of the opposite shoulder. The limb was confined against the chest wall with an ordinary roller bandage.

All dressings were removed on the tenth day after the operation, when passive motion and massage was begun. It is worthy of remark that this patient, though 67 years old, made a perfect recovery from the operation, which was quite long and tedious. His pulse was never more than 80 per minute, nor was his temperature ever over 100 degrees, and that only once during convalescence.

I have recently seen this patient, eight months after the operation, and was much gratified to find that he had very good voluntary motion, at least one-half of the normal range. He can dress himself and write very well with his elbow resting on a table. He remarked to me that he did not think that he would ever be able to train himself for much of a prize fight, but that he felt satisfied that his arm would be all right for one of his age.

Case II.—Diagnosis: Subcoracoid dislocation of the head of the humerus with an oblique fracture through the surgical neck and union in an abnormal position.

J. R., aged 15 years, was first seen by me January 25, 1909, six weeks after the accident that caused the above described condition. This patient was also referred to me by Dr. Irvin, who had made an unsuccessful attempt to reduce the dislocation by manipulation. He then put the arm up in splints, hoping that he might be able to reduce the dislocation after union had occurred, but failing in this he sent the case to me.

On January 27th I opened the joint through an incision similar in every respect to the one used in case No. 1 above described. The proximal end of the humerus had been forced partly past the head of the humerus and was united to the fragments in such an abnormal position that I did not think it possible to obtain a movable joint, even if the head of the bone was reduced to its normal position; hence I removed the entire fragment, which consisted of the head, tuberosity and a part of the shaft. The wound was closed just as in case No. 1, taking special pains to force the end of the humerus against the cushion I had made over the glenoid cavity. The dressings applied and position was the same as in case No. 1.

The dressings were removed on the tenth day, and had passive motion and massage at once begun. I have not seen the patient since he left the hospital, which was about two months after the operation. At that time he had fair use of the arm, though a somewhat flail joint was the result. In view of my experience in removing the head and several inches of the humerus for diseased conditions, I feel very confident he will have a much more useful arm, even with a flail joint, than he would have had with an ankylosed one, which surely would have been the case had I not removed the broken end of the humerus.

Case III.—Diagnosis: Old unreduced forward and outward dislocation of the humerus, with a comminuted fracture of the head and surgical neck.

I. S. N., aged 50 years, a railroad employee, was referred to me by Dr. E. R. Michaux, surgeon to the Southern Railway, Greensboro, N. C., April 13, 1909. The X-ray here given shows beautifully the dislocation as well as the communition of the upper end of the humerus, including the head of that bone. (See photo. No. 2). This patient was otherwise injured in that his arm was broken just above the elbow

and spine sprained. The accident occurred by his being thrown from a lever car while it was in motion. He came under my care just four months after the accident.

Examination showed that the shoulder joint was absolutely ankylosed, and that any passive motion apparently gave great pain. Voluntary motion of the limb was practically nil, even in the fingers, although there was no marked paralysis. Upon seeing the X-ray it was decided at once that nothing short of an excision of the head of the humerus and the removal of the fragments of bone from the upper end of the humeral shaft, so beautifully shown in the X-ray, promised any relief from the existing disabled condition of the arm.

On April 18, 1909, through an incision about five inches long along the inner border of the deltoid muscle, I removed the head with the fragments of the upper end of the humerus; the fragments were firmly adhered to the articular surface of the humeral head as well as to the glenoid cavity; one fragment was adhered to the acromion process as well. The head of the bone was easily removed with a stout pair of bone forceps and chisel to prize with as the union at the seat of the fracture through the anatomical neck was not very firm. The glenoid cavity was well cushioned over with all of the available tissue that could be pulled over it with a stout catgut suture; the end of the humerus was well rounded off and pushed up against the cushion over the glenoid cavity. The wound was closed without drainage and the limb put in the same position as in the other cases described.

Perfect primary union occurred, and at the end of ten days all dressings were left off and passive motion and massage begun. I might incidentally state in passing that the patient had an old inguinal hernia which was operated on by the Bassini method as soon as the shoulder joint operation was completed. His recovery was uneventful in every way, and he left the hospital on the eighteenth day.

I last examined this patient on June 22nd, just nine weeks after the operation. At that time he had very fair voluntary motion, being able to dress himself and to lift quite heavy weights. I estimated that he had about one-third of the normal range of motion, which was surely very good for that length of time.

Case IV.—Diagnosis: Old axillary dislocation, complicated with a comminuted fracture through the tuberosity and surgical neck of the humerus.

J. R. N., aged 30 years, a mechanic. This case was brought to my clinic at the Mary Fletcher Hospital, University of Vermont, May 1, 1909. The patient was injured on November 22, 1908, just about six months before my examination. I found the arm markedly abducted with the head of the humerus easily felt low down in the axilla and pressing firmly against the chest wall. The muscles of the limb were in a condition of spastic paralysis, which produced a typical claw hand. There was no voluntary motion of the limb, and sensation was much impaired. Atrophy of the entire limb was a prominent feature. This condition was evidently caused by pressure on the axillary plexus of nerves. The patient stated that he had never suffered much pain; he had little or no pain from my rather vigorous manipulations in examining him.

I made my incision as in the other cases along the inner border of the deltoid muscle. This I soon found to be a mistake, as it was such a great distance to the head of the bone, which could not be released from its attachments to the chest wall. It was at least five inches from the top of my incision, which extended down through a mass of tough, apparently fibrous, tissue that had formed in the track of the bone in being forced to such a distance through the axilla. Although the comminuted fracture of the bone had firmly united, it was simply impossible for me to bring the head of the humerus back to the glenoid cavity, which could hardly be called a cavity, as it was all filled up with tough, fibrous tissue and would have been no good for its normal function, even if the head of the bone could have been replaced. I encountered a mass of bone that seemed to be almost twice the size of a normal humerus at this point; this was due to the solid union that had taken place between the displaced fragments. It was with great difficulty that the head was removed, owing to the depth of the wound through which I had to work and the firmness with which it was attached to the chest. It was finally removed in small pieces with bone forceps. The bone had to be removed down to the surgical neck before the end of the humerus could be brought back to the glenoid cavity. This was about

the most difficult operation I have ever done, and if I ever have to do it again under similar conditions I shall make my incision through the axilla, which will enable me to do a much quicker and neater operation with more ease. The wound was closed and limb put up just as in the other cases above described.

I have had no opportunity of examining this patient since one week after the operation. At that time he was doing all right.

Case V.—Diagnosis: Recent subcoracoid dislocation, with the tuberosity of the humreus and a part of the humeral head attached split off.

George I., aged 62, government official. While speeding his trotter on the Potomac Speedway the horse got beyond his control, ran away and upset the buggy, throwing him on his shoulder, producing the above described accident. I saw him within an hour after the accident. Upon examination I thought I had only a simple subcoracoid dislocation to deal with, but after he was anesthetized I soon found upon manipulation that I had a fracture complicating the dislocation. The limb was then put up in a temporary dressing and preparations made to operate on him the following day.

June 7, 1909, through an incision extending downward from the acromion process for about three inches; the fragment of bone was removed and the dislocation easily reduced. The badly lacerated capsule was repaired with catgut sutures and wound closed without drainage. The patient made a perfectly uninterrupted recovery. All dressings were left off on the tenth day when passive motion and massage were begun. I have recently examined this patient and find that he has almost perfect use of his arm.

901 *Sixteenth Street.*

THE TREATMENT OF FRACTURES AFTER REDUCTION.

By CHARLES S. WHITE, M. D., Washington, D. C.
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It is as true of surgery as of our mental impressions, that great events efface the memory of inconspicuous details, and it has been my observation that the discussion of the treatment of fractures has been largely limited to the reduction, with neglect or indifference to the less salient features of the after care. In other words, we have constructed a surgical diaphragm which allows our attention to be directed only on the approximation of the fragments, while the complete restoration of muscle and nerve lies outside of the mental aperture. So it has seemed to the writer that our endeavors in fracture work have been circumscribed, that a field of useful activity exists in the treatment beyond simple reduction. It may be said truthfully that the mediocrity of the after treatment more than neutralizes clever diagnoses and skillful reduction.

It is a wise rule to see each case within twenty-four hours after the permanent dressing is applied. Should circumstances make this impossible, some provision must be made for probable swelling. Splitting the case, molded plaster splints, or unusually well padded wooden or wire splints suffice. The unsightly deformity and the impaired arm of Volkman's contracture are silent reproaches to tense dressings.

It is far better to use many bandages with moderate pressure to retain a splint than to use a single bandage tightly. It may consume bandages, but it decreases the possibility of failure.

How often is it necessary to visit a case after reduction, and what should be done? It is the purpose of this paper to answer these questions. In the first week, frequent visits are necessary to determine if the circulation is hindered, if the splint is binding at one point to the discomfort of the patient, if it is loose, displaced or broken.

It has been my experience that the average medical man applies his splints too tightly. Another common failing is to bandage a limb in extension and then flex it. Such a procedure is generally followed by constriction and blue and edematous extremities. Short and narrow splints are frequently seen.

While the X-ray has been largely used in diagnosis, it is of inestimable value after reduction. In many cases it is the only means of settling the question of proper reduction, and this is paramount, and I may say, that, except in unmistakable cases, the Roentgen ray forms an important part of the after treatment. It may mean another anesthetic or an operation, but even so, it is a "consummation devoutly to be wished" in preference to an indestructible

osseous monument to our baneful ignorance. In the reduction of a fracture of the shaft of a long bone, we can rely largely upon mensuration and palpation for relation of the fragments, but in fractures involving joints or in close proximity thereto, an error is likely to creep in. It is better to squarely meet an improperly reduced fracture than to expect time to remedy our defective methods. Nature, generous as she is, balks at miracles. I do not hesitate to say that the skiagram should not be shown to patients in all cases. Why? It cannot be controverted that perfect functional result is compatible with imperfect anatomical relation. Irregularities, spicules of bone, and partially detached fragments are cared for by the periosteum in a truly marvelous fashion, yet it is by no means easy to convince the average patient that such is the case. In nine cases out of ten, the patient believes that the fragments are coapted as neatly as the carpenter would join his timbers, but we know that it is the exception and not the rule to restore the structures to their exact anatomical relation.

It is possible that the knowledge of dissociation of minute bony fragments is not without effect on the patient's mental attitude, resulting in loss of confidence, fear of impaired limbs and often vicious and unjust criticism. Slight deviations from normal lines convey to the inexperienced, visions of stabbing pains, ankylosis, deformity and a host of other ailments that only the imagination can conjure.

Plaster dressings, except the molded variety, are removed with tedious cutting or deterioration on the splint in the quicker methods of removal, but they stay in place so well that frequent changes are unnecessary. Some practitioners are of the opinion that a fracture properly reduced, a close fitting cast applied, embraces the treatment of fractures, with the addition of a few inconsequential visits at which nothing is done but to say, "You are doing nicely." At the end of three weeks there is atrophy of muscles sufficient to leave a space between the limb and the cast. If the cast is not removed or some steps taken to obliterate this space, angular deformity may occur. A limb may be perfectly set in plaster, well applied, but in the course of several weeks atrophy allows movement of the limb within the case, and being unsupported, becomes angulated with a deposit of calcium salts. A long bone that has united, with angular deformity, can be straightened with very little pain in the third week. A light new cast will maintain the position.

In the joint regions, the effusion contraindicates the use of snugly fitting casts or splints and it behooves us to keep such cases under closer observation and to make changes in our casts at intervals of a week, largely on account of the variations in the circumference of the limb.

At the end of two weeks, it can be said that fibrous union has occurred in the average case, and the danger of displacement, particularly overlapping, is slight. When a splint is temporarily removed the limb should be examined for pressure, trophic ulcers, deformities, extravasations, and anesthetic zones. When joints are involved very gentle passive motion can be inaugurated at the end of two weeks. By grasping the limb firmly above and below the joint, it can be flexed and extended in a small arc, without the co-operation of the patient, until pain is felt at the end of the movement. This should be our guide to the amplitude of motion, and although it be but two or three inches at the extremity of the limb, it will suffice. It is largely in fractures near the elbow that passive motion must be employed, and we must assist restoration of function by this means every few days until the osteoblasts warrant a more and more vigorous measure. Passive motion should not be restricted to flexion and extension, but gradually to all movements of which the joint is normally capable. We may safely expect this means to minimize periarthritic adhesions.

Massage is useful from the third week on, and later, when the apparatus is discarded, daily use of it is advisable. If massage is used at all, it is better if done properly. The mere rubbing of a part is ofttimes useful, but systematic and rational stroking or kneading, known as massage, is better. The common movements are effleurage or gentle stroking with the hands, finger or finger tips in the direction of the lymph stream at various rates per minute. Petrissage is a method of kneading or rolling, deeper than the former in its effects and designed to emancipate the muscles. Tapotement or beating and tapping has a very limited application. At the end of the second week, the stroking movement in massage is employed to advantage for ten or fifteen minutes every few days. This friction has a tendency to assist the venous return and

lymphatic circulation, and in this way remove the remains of acute trauma in the softer tissues. Petrissage is especially serviceable after firm union.

The alternate application of hot and cold water is an excellent method of promoting muscular activity and reducing swelling. Whether it is the tonic effect of the cold or the pendulum-like circulation which is probably incited, I am unable to state. Another reason for its use is that by this means the patient is given a task, preventing self-analysis and introspection. This therapeutic measure can be readily carried out by the use of two basins and two sponges. The part should be held over the cold water and two or three sponges of cold water wrung out over it; then, over the other basin, the same procedure followed with hot water, repeating this alternately until fifteen minutes are consumed. This should be done night and morning. Swelling is usually materially reduced until only a trace is left, which rarely yields to any method within two months. The little edema which so often remains is rarely a source of concern, but it is annoying. A plausible explanation is that the pressure upon, and the possible obliteration of venous channels by cicatrical tissue creates a dam. The collateral circulation is slowly established in the old and feeble, and the obstinate swelling may be a barrier to the prompt use of the hand for delicate manipulation.

The exercise of the part, with a view of developing atrophied muscles, can be rarely indulged in within a month of the occurrence of the fracture, but when put into practice, an intelligent application of work is most beneficial. The patient must be warned against violence but the time consumed each day in the use of the muscle should be considerable. It is not the force employed, but the method and time occupied in the use of the muscles which need consideration. The exercise prescribed should be along the line of the patient's work if possible, that is, selective exercises, that he may resume his occupation at an early period with efficiently trained muscles. Should a pianist suffer a Colles' fracture, one of his first manipulations should be light exercise at the piano. If a brick mason should be a victim of the same accident, he should be advised to practice the handling of a trowel and getting a grasp on a brick, gradually extending the compass of his movements until he is able to work at his trade. It would seem ridiculous to reverse the exercises in these patients, but hardly less so than the common practice of prescribing the same exercises for all patients irrespective of the occupation or profession.

The intelligent use of work is a valuable addition to our resources and we should avail ourselves of it more often than we do. The usual instruction that the patient receives is to use the limb in moderation without particular attention to avoid anything but sudden violence, but it seems that much could be gained by specific instructions regarding systematic work.

I have never seen a case in which breaking up of adhesions under anesthesia hastened the return of function, and I believe that the practice has little grounds for justification, although many surgeons practice it and it may be contrary to your opinions. There is often a strong temptation to liberate a fixed joint when it seems possible to do so by a little force, and though we can tear these unnatural bonds, the ultimate result is the only test of the value of this treatment. It has been my experience, both in children and adults, that after forcible liberation of adhesions, the pain and tenderness is much increased and any voluntary motion aggravates it. Do these patients immediately begin to use the joints and prevent the reformation of adhesions? Decidedly not. The limb is kept quiet for days or weeks until the pain disappears and in the meantime, the fibrous tissue, torn asunder by the manipulations, is repaired and the original adhesions, like debt and poor relations, are always with us. More can be accomplished by graduated exercise in the attenuation of adhesions than by any other single method of which I am aware.

There arises in the course of no small number of cases, obstacles to the successful execution of our orders for gymnastics and massage, chief among these being fear or timidity on the part of the patient. Apprehension lest the bone be refractured and the presence of pain are fruitful sources of lack of aggressiveness, approaching cowardice in some individuals. In spite of our reassurance, we find cases which will not use the part, and then it becomes necessary to act in the role of a dictator or slave driver. Firmness in dealing with such individuals is imperative, for they will blame you later if the result is not what they expected, and we have no defence in

the statement that they refused to carry out our orders. This plea for poor results would be sufficient in law, but never satisfies the patient or his friends. Perseverance is usually compensated by complete restitution of function in a much briefer time than if we allowed the patient to follow his inclinations. Children are best handled by gentleness and rewarding their efforts. I have in mind a little darkey who had a dislocated and infected elbow, but who persisted in keeping the arm in a semiflexed position. My efforts to flex and extend generally terminated in the agitation of this "Son of Ham," his antics being interpolated with vociferous war whoops. This was not conducive to the peace and quiet of the ward, or my own equanimity, and a more successful means was adopted which brought prompt results. A dime was placed on his head and it became his property if he could reach it with the affected arm. It is hardly necessary to add that no money escaped him.

If these few vague and futive ideas contain a single suggestion of practical use, I will not feel like the poet's flower that was "born to blush unseen and waste its fragrance on the desert air."

The Farragut.

EARLY MOBILIZATION IN THE TREATMENT OF FRACTURES.*

By HARRY HYLAND KERR, M. D., C. M., Washington, D. C.

Associate Surgeon, Providence Hospital, Washington, D. C.

The treatment of fractures seems so well-established that one hesitates to speak on such a subject, but my practice in the past few years has given such good results that I deem it worthy of note.

Two very striking observations lead me from the orthodox treatment of fractures. These were, first: The difficulty of breaking up the union of a fracture even after two or three days either by the open or closed method, and secondly: The long convalescence in such cases, especially of fractures in the neighborhood of joints.

The amount of force necessary to free the broken fragments before they can be reset after treatment in a temporary splint is surprising. It takes a good deal of strength and perseverance to break down Nature's splint. By the open treatment we find the fracture surrounded by a firm gritty callus which often has to be removed by a stout periosteal elevator or even a bone chisel. The longer after injury the firmer and more gritty or osseus this callus has become, but it attains remarkable firmness in seven to ten days.

In the matter of convalescence the restoration of function is usually too long delayed. I venture to say that more time is lost in the period of partial disability after firm union by the usual treatment than in the period of total disability while the limb is in splints. This is especially true of fractures near joints and one has to make a guarded prognosis of six months or more as to complete restoration of function. It is, of course, due to adhesions in the joints from their long disuse. By early mobilization this is avoided and the first provisional callus is utilized. The accident insurance companies recognizing this protracted convalescence tempt their claimants with lump sums at the time of injury to save payment during the long period of partial disability.

In a case of fracture the injury involves the soft tissues in the neighborhood and the break is immediately surrounded by considerable extravasated blood. This begins to be absorbed within a few hours and to be replaced by a connective tissue exudate arising chiefly from the periosteum and medulla. It forms a bulging mass, including both fragments, and resembles very closely the "wiped joint" of a plumber. It is called the "provisional callus" and is gradually converted into osseus tissue. Ossification probably begins at about the third to the fifth day. This callus firmly cements the break during the process of rarification and condensation of the cortical layers of the two fragments. When these have again become united by lamellæ of bone the excess of periosteal and medullary new formed bone is gradually absorbed and the original continuity of the bone and the medullary cavity is restored.

The first use of this provisional callus to maintain apposition while passive motion and massage were applied was in fractures of the upper extremity and especially in Colles' fractures. The success in these cases leads me to extend the practice, and now I unhesitatingly recommend the method for treatment of all cases.

*Read before the meeting of the Medical Society of Northern Virginia and the District of Columbia, May 18, 1910.

The fracture should be properly reduced and set and then absolutely immobilized for at least ten days till nature has a chance to form her splint. By this time the provisional callus is well on its way to ossification. The splints should then be partially removed every day and passive motion and massage instituted. This should at first be gentle and limited and should never cause pain. In fractures of the humerus or femur the splints should not be disturbed till at least the fourteenth day, as firmer callus is necessary to support the weight of the limb. The extent of passive motion and massage should be governed by the tendency to recurrence of deformity. Thus in Colles' fractures the splints may be first removed as early as the fifth or sixth day, but in spiral fractures of the humerus or tibia, it is wiser to delay till the fourteenth day at least. With the daily treatment the passive motion is gradually extended. In cases of fracture of the shaft of the long bones the adjacent joints should be freed from the splints in about three weeks and only coaptation splints applied. After four weeks all fixation apparatus can be removed from the arm and after six to eight weeks from the leg.

In this treatment the advantage of individual wooden splints is apparent and I have extended their use to nearly all cases. More accurate apposition can be maintained after reduction and while the splint is being applied; they are easily loosened or tightened as necessary and the fracture is open to daily inspection and measurement.

With such procedure, we will find our fractures in much better shape at the time when splints are usually first removed and without the atrophy, edema and stiff joints so often seen. The treatment takes a little more time and care on the part of the surgeon, but the results obtained will amply repay him. Complete restoration of function is obtained in from one to three months in all fractures, even those of the femur. How much more satisfactory this is than the long period of stiff joints with atrophy of the muscles and edema of the limb.

We are only too apt to treat our fractures by routine methods and it is in opposition to this practice that I have presented this paper. I have omitted tedious case reports, but I have used the practice I advocate in all the usual fractures and especially those of the upper extremity.

1742 *N Street.*

CASE OF CONGENITAL ABSENCE OF THE RECTUM.

By W. HAMPTON SAUNDERS, M. D., Roanoke, Va.

Recently there occurred in my practice, a case of congenital absence of the rectum, that I was able to save by prompt operative procedure, and thinking the profession might be interested, is my reason for reporting the case.

On March 14th, this year, I attended Mrs. C. W. S., age 26 years; primipara, in confinement. Both parents healthy, and of a plethoric nature. The confinement was perfectly normal. The child, a boy, was well developed, well nourished, weighing 8 pounds—in fact, seemingly, perfectly normal in every way. The delivery was finished at 5:00 P. M. March 14, 1910.

The next morning the nurse asked me to call early as the baby's bowels had not acted and that it had cried considerably during the night. The examination revealed some dark stain on the end of the penis, and a stripping movement of this organ brought a quantity of pure meconium out of the urethra. The penis, scrotum and perineum were normal. The cutaneous folds around the anal opening seemed normal, but upon close examination there was only a shallow depression, possibly 1-8 inch deep. Pressure on the abdomen produced a discharge of meconium per urethram, but no bulging of the anal region. While pressure was being made on the abdomen the child urinated; the first few drops of urine were stained with meconium, while the last, and greater part, was clear.

A consultation was held and immediate operation agreed upon. At 3:00 P. M., less than 24 hours after birth of child, with Drs. T. D. Armistead and A. Stone, I made an incision through the anal folds backward nearly to the tip of coccyx; then by blunt dissection in the direction of the promontory of the sacrum until we had a cavity about two inches deep, when we found a white membrane; this was clipped and proved to be bowel. We then brought the bowel down to the margin of the skin and fastened it there with catgut sutures (chromic). The opening that we had made in the bowel was enlarged until there was a free and easy discharge of bowel contents. The child made a rapid recovery from the operation and at this time has, functionally speaking, a perfect rectum and anus, with good sphincteric control.

On two separate occasions during the first three weeks after the operation the child had colic with considerable gas and discharged some liquid bowel contents through the urethra. With the latter exception the parents tell me that the boy is perfectly healthy and causes no more trouble than a normal child would cause.

Our diagnosis in this case of absence of rectum, with sigmoid connecting, by a small opening, with the urethra at about the juncture of the membranous with the prostatic divisions, was made from the following points: discharge of bowel contents through urethra; a normal penis, scrotum and perineum, absence of bulging of anus on pressure of the obdomen; first urine cloudy, the last and greater part clear, and the great amount of dissecting necessary to reach the bowel, which was found near the level of the promontory of the sacrum.

134 1-2 *Salem Ave.*

A CONSIDERATION OF CONDITIONS JUSTIFYING THE INDUCTION OF PREMATURE LABOR.*

By C. H. KINNEAR, M. D., Tacoma, Wash.
President of the Society.

In calling attention to a consideration of this important subject, I cannot enter into a full study of such a vast field for observation; but I have attempted to glean the essential factors to be obtained from standard textbooks, medical journalism and reported experiences of painstaking practitioners with whom I have conversed.

I suspect that greater good will come to our profession, as well as to patients, by a realization (more than is usual in our obstetric practice) of the occasional need of premature labor, even though I lay no claim to originality in the remarks and observations to be presented herein with that desirable end in view.

In this age of noticeable prophylaxis in the various branches of medicine and surgery, valuable progress has been made in obstetrics, especially in avoiding the former disastrous infections of the mother during the puerperal state, as also the diseased afflictions formerly happening to the new-born infant too often (ophthalmia, rachitis, tetanus, cholera infantum, scurvy, etc.), and in the marvelous saving of both mothers and infants by the improved technique and skill of Cæsarean Section experts, although hardly sufficient attention has been paid to an available preventive measure for saving lives of mothers and infants (particularly infants) from impending dystochia as might be afforded by premature labor.

The report of the Sub-Committee on Obstetrics and Gynæcology of the Council of Medical Education of the American Medical Association in the bulletin, published September 15, 1909, states that more than six thousand women die in the United States annually during confinement, while the sequellæ of labor supply one-half of Gynæcologists' work; and, that no measure can be taken of deaths and damage to children, a number of whom are paralyzed at birth and doomed to be helpless imbeciles or to nervously diseased existence. It would seem that a generous proportion of these results could be attributed to those formidable complications of pregnancy—eclampsia, placenta prævia and contracted pelvis; indeed the report further states that eclampsia still has a maternal mortality of 20 to 40 per cent., and fetal mortality of 50 per cent.; placenta prævia a maternal mortality of 10 to 30 per cent. and fetal mortality 40 to 60 per cent. Certainly it has happened too frequently, that the attending physician finds his patient unable to make progress in the second stage of labor, notwithstanding active, strong pains; and he is barely able, with the combined strength of himself and assitant on the forceps, to deliver a dead child, when it is demonstrated that the patient although apparently well formed, has a contracted or deformed pelvis which would have been discovered by a careful pelvimetry before the latter months of pregnancy and an opportunity afforded to deliver a live child prematurely.

Surely, some part of this annuity of deaths and afflictions to mothers and infants might be avoided if that important work in the line of preventive medicine (the induction of premature labor), were performed oftener.

Likewise dystochia from other causes might be successfully combatted prematurely by the timely examination of the patient and the discovery of existing tumors, faulty presentation, mal-proportion of fetal head, etc.

The emptying of the uterus between the 32d week of gestation and full term when the fœtus is viable (although some might be saved between 28th and 32nd weeks with artificial aids

*Read before the Pierce County Medical Society, Tacoma, Wash.

to supply heat and nutrition by the incubator and gavage) will chiefly be considered; rarely, attention might well be directed to abortion procedures before viability of the fœtus in hyperemesis gravidarum.

That many infants delivered instrumentally at or beyond full term are still-born or die within a few days the practitioner will not deny, and I believe he will also admit that the necessity for delivery with instruments in a few of these cases could have been avoided by the induction of labor a few weeks prematurely. This statement is not intended to belittle the useful field of application of the obstetrical forceps, for which there are proper indications and by which difficult labors are frequently terminated with the saving of infants and mothers that would otherwise perish (a large proportion of such cases, however, depending upon uterine inertia and lack of extention or flexion of fetal head); but, for the purpose that we more fully appreciate the fact that the live infant may be expelled naturally in a majority of abnormal conditions favoring dystochia by an induced labor when gestation has advanced to the 32d to 36th week. That such premature delivery does happen time and again (without being induced) in the ordinary obstetrical practice and with favorable prognosis is a common clinical experience, I am sure.

Generally speaking the class of cases that come within the limits of this procedure, and in the order of their importance would be: 1st, pelvic contraction of slight degree; 2nd, enlargement of fetal head; 3rd, complete placenta prævia; 4th, eclampsia; 5th, hyperemesis gravidarum; 6th, breech presentations; 7th, fibroma and osteoma; 8th, obesity; also, might be included advanced cases of carcinoma or pulmonary tuberculosis when the patient is not expected to live until completion of gestation.

In pelvic contraction of slight degree careful pelvimetry, external and internal, must be our chief reliance for determining whether to induce premature labor in the primipara: in the multipara, the history of former difficult labor with pelvimetry. Normal measurements for comparison of results obtained can be found in the standard text-books; the important ones mentioned in Cooke's Obstetric Technique are the distances between anterior sup. spines, 26 c. m.; between crests of ileum, 29 c. m.—11 inches; between trochanters, 31 c. m.; between posterior sup. spines, 9.8 c. m., and conjugate-diameters (external 21.5 c. m. and internal 13 c. m.).

He says, if the external conjugate measures between 19 c. m. and 21.5 c. m., contracted pelvis will be found in one out of ten; and if it measures between 16 c. m. and 19 c. m., contracted pelvis will be found in 50 per cent.

He advises the induction of premature labor at the 36th week if the external conjugate measures 17 c. m. (or better at 32nd week if a reliable incubator is available). The diagonal conjugate is found by digital examination and measured with the pelvimeter from the tip of second finger which touches the sacral promontory to the point of contact of the space between the thumb and forefinger against the sub-pubic ligament. This less 1 3-4 c. m. gives the true conjugate; also, the external conjugate less 8.5 c. m. equals true conjugate diameter, approximately. External conjugate is taken between depression below the last lumbar vertebra and front of symphysis pubis just below the superior border.

The oblique diameter and measurements of Nagélé are to be taken in special deformities. Colliers' pelvimeter is recommended as useful, being graduated in both inches and centimeters. For internal measurements of the pelvis, Dr. Jacobson's pelvimeter is most satisfactory, as its use does not cause excessive pain to the patient. The centimeter scale is preferred by most authorities, but may be converted into inches if desired (1 c. m.=.39368 in. and 1 in.=$2\frac{1}{2}$ c. m.). Skillfulness in pelvimetry may be acquired by practice; but to arrive at a correct estimate of the different planes of the pelvis the varying factors—the height, angle and thickness of the pubes, and elevation of the sacral promontory—must have a bearing on the judgment of the operator. Patients with pronounced deformity, or more than contraction of slight degree, would better be referred to a specialist for Cæsarean section if one is at hand, as the difference in the size of premature, and normal infants heads is comparatively small, while the moulding property (or hardness of the fœtal cranium), is an uncertain factor—at times early ossification of the cranial bones taking place. Measurements of premature infants' craniums by Shroeder (in Hirst's Obstetrics) are as follows:

At 36 to 40 weeks, bi-parietal diameter= 8.83 c. m. or 3.5 in.

At 32 to 36 weeks, bi-parietal diameter=8.69 c. m. or 3.42 in.

At 28 to 32 weeks, bi-parietal diameter=8.16 c. m. or 3.21 in.

The tradition that Cæsarean section is a deadly operation is broken since the favorable reports of such specialists as Dr. W. L. Harris, Providence, R. I., in the *New York Medical Journal* April 3, 1909. He delivered 22 infants by this operation; all of the mothers recovered and only three babies died; but he says that the induction of premature labor might solve the difficulty of delivery in deformed pelves if we could be sure of the right time; for if brought about too soon we imperil the life of the infant, while if we wait too long we face the original danger of difficult labor. However, he advises Cæsarean section when the conjugate diameter of the pelvis measures below 3½ inches=8 c. m.

Dr. F. Schanta in an article "Treatment of Labor in Contracted Pelvis," published in the *Medical Press and Circular*, London, April 21, 1909, says that spontaneous birth is a possibility in women with the internal conjugate above 8 c. m.; and, expectant treatment is adopted in his clinic, 80 per cent. being delivered safely (although fœtal deaths are not estimated); hebotomy is performed as an alternative operation if spontaneous birth fails. For patients with the internal conjugate less than 8. c. m., Cæsarean section is kept in view as the method of treatment, but these operations must be performed with the most skillful technique, carried out in an institution possessing arrangements for operating under strict asepsis. He considers interruption of pregnancy available as a prophylactic operation, more in other complicating anomalies of labor than in contracted pelvis.

Until the time arrives when the ordinary practitioner is as well trained to perform Cæsarean section as he is in the use of forceps, I judge that the results from the induction of premature labor, aided by forceps, will prove it the more acceptable procedure; for seldom does a practitioner acquire the necessary skill or obtain the help of the prescribed aseptic institution for the safe performance of Cæsarean section; also, I judge it would ofttimes prove disastrous to depend upon spontaneous delivery at term, entirely, rather than occasional premature labor if external conjugate is not above 17 c. m.—more especially in primiparæ of thirty years or older.

I would report the following:

Case 1. Mrs. F. A young, tall, primipara, age 20, flat pelvis, external conjugate measured 17.5 c. m., induced labor at 36th week by passing bougie with stylet, and by manual dilatation; O. L. A. presentation; in labor 12 hours, and necessary to deliver with forceps (child, female, lived), mother recovered.

Case 2. Mrs. C., age 32, well proportioned in appearance, but justo-minor pelvis; external conjugate measured 18 c. m.; a previous labor difficult and child lost; induced labor by bougie and manual dilatation at 34th week; membranes ruptured before dilatation of cervix; O. L. P. presentation; in labor 36 hours, delivered with axis traction forceps; child (female) dead, mother recovered.

Case 3. Mrs. O., primipara, deformed pelvis, right side normal, left side infantile, lack of development of bones and muscles on left side since six years of age on account of paralysis; on left side the oblique measurements were 1.5 c. m.; shorter than normal and transverse measurements 1.8 c. m., shorter external conjugate measured 20. c. m.; induced labor by gradual dilatation and gauze packing; O. D. A. presentation; delivered after 24 hours in labor by Walcher posture and forceps; child (male) saved, mother recovered.

The rapid manual dilatation and delivery under anesthesia by forceps or version where indictations of haste are paramount (in eclampsia and placenta prævia) should be the chosen method; but in cases where haste is not demanded (in contracted pelvis) the methods of Krause and Cooke are preferable, *i e.*, by packing the cervix until dilatation is obtained, then passing a bougie and packing the vagina; or by passing Cooke's expansion ring (soft catheter with a spiral spring enclosed and tied in a loop) to obtain dilatation, then packing applied inside the uterus with a small size gauge-packer. More detailed explanation is given in Dr. J. B. Cooke's Obstetric Technique.

When multiple pregnancy exists the size of the fœtal heads is comparatively small, and labor frequently occurs prematurely; therefore, its induction will not be necessary even in contracted pelvis of more than slight degree.

The diagnosis of enlargement of the fetal head is more difficult than that of contracted

pelvis. An unusually large father and small mother might predispose to it. Cephalometry by Hirst's modification of Müller's method if practiced from week to week, will give warning of an increased size of head (particularly in hydrocephalus). A fair idea of the bi-parietal diameter can be obtained by this method as follows: With the head in a tranverse position and pressed firmly against the brim of the pelvis, the tip of one leg of a pelvimeter is placed in the depression below the last lumbar spine of mother, and that of the other leg placed directly over the anterior parietal prominence of the fetal skull. If the eminence projects ½ c. m. beyond the superior border of the symphysis pubis, the time for the induction of labor is indicated; if 1. c. m., a spontaneous engagement of the head can not be expected.

An X-ray skiagraph probably could discover an enlarged proportion of the child's head to the mother's pelvis; but X-raying is considered inadvisable on account of its liability to cause severe burns (the mobility of the fetus making necessary many prolonged exposures), which burns associated with conditions, possibly unforeseen, arising in pregnancy, might instigate a malpractice suit.

Dr. H. A. Miller, "Operative Procedures for the Relief of Dystochia" (in "Surgery, Gynecology and Obstetrics," July, 1909, abstracted in Jour. A. M. A.), believes that premature labor in selected cases (of enlarged fetal head) carries a less mortality for mothers than pubiotomy or Cæsarean section. It is probably the choice of procedures for cases in which delivery is to be accomplished at the 36th week (and one week before or after). The proper time for the interruption of labor should be determined by the Stone method of examining the fetal head, by careful pelvic measurements and repeated examination by the Müller method. It is very important to provide skilled care for the premature infant at least during two months after delivery, the most essential part of which is that the child be breast-fed by the mother or a wet nurse. Craniotomy is never justifiable. I report a case:

Mrs. B. J.; indications noticeable in large father of hydrocephalic head; mother small primipara, age 32 years; pelvis measurements normal; parietal eminence of fetal head extended 0.8 c. m. beyond the superior pubic border at the 36th week (Hirst-Müller method); induced labor by manual dilatation and bougie; O. L. A. presentation; after 24 hours delivered with forceps; male child, lived 36 hours, mother recovered.

In his article entitled, "What does Modern Therapy of Placenta Prævia Accomplish?" published in "Zentralblatt fur Gynækologie," Leipsic, January 16, 1909 (abstracted in Jour. A. M. A.), Hanness reports from Küstner's Clinic, Breslau, that the use of the inflatable bag (hystereuynter) might accomplish the delivery of living children in 75 per cent. or 80 per cent. of cases, besides giving greater safety to mothers than the old method of version; and the average practitioner could, and should be expert in its use. Prof. B. Krönig also thinks it saves more children, but has not reduced the mortality of mothers. (Article on "The Use of the Inflatable Bag in Placentia Prævia," published in "Zentralblatt," April 21, 1909.)

Would not the use of the hystereuynter then afford a still greater security to child and mother in placenta prævia, when labor can be induced prematurely? For there would then be less stretching of the insertion of the placenta in the isthmus below the contraction ring of Bandl with better contraction following labor, insuring less danger from fatal after hemorrhage to the mother as we would be able to expedite the delivery of a smaller sized child. In many cases delivery has been necessarily delayed so that mother's hemorrhage may be controlled while the child's body acts to compress the placenta; and in cases requiring podalic version the after coming smaller head could be delivered promptly, lessening the duration of impending death to the fetus from prolonged pressure obstructing the circulation in the umbilical cord, for five minutes obstruction of the circulation proves fatal in most instances.

Hirst says that placenta prævia detected in pregnancy should be terminated at the end of the seventh month, or as soon thereafter as diagnosed. Hemorrhage is scarcely ever dangerous in these cases before the 32nd week, but after the 7th month the woman may bleed to death any time before the physician can reach her.

Case 1. Mrs. L; after two attacks of moderate hemorrhage about 30th week and 34th week, labor was induced at the 36th week by rapid manual dilatation and tampons: delivered by version, bringing down foot; head delivered as quickly as possible after its engagement by compression over the uterus; child saved and mother recovered. Three cases delivered at full term;

the three children were dead, but the mothers recovered.

Eclampsia though a rare complication of pregnancy, should not be neglected in considering the induction of premature labor. The only obstetrical patient I lost by death in 20 years practice, died from eclampsia. Choreic movements existed for two months previous to the eclamptic seizure. Now I believe she might have been saved by a premature delivery. Dr. J. R. Cooke says, that a physician would better be a gambler if he takes chances rather than precautions to cure rare complications.

Unless an improved condition follows medical treatment after a reasonable time (sufficient to cause a revision of the usual bad prognosis in a patient with eclampsia), it would seem best to recommend premature delivery between the 32nd week and the 36th week or as soon as medical treatment is deemed futile. It must not be forgotten that in these gestational toxæmias we have the added complication of the serious effect upon the fetus, sometimes even though the mother is less seriously effected. Therefore, the fetal heart sounds should be examined at regular intervals during attacks of albuminuria with eclamptic manifestations; and should the examinations show the life of the fetus to be threatened in consequence of the toxæmia, premature labor would better be induced if at 32nd week, 30th week or period of gestation when fetus could live.

Case 1. Attack of eclampsia at 36th week; given croton oil, inhalation of chloroform: 1½ pints of blood taken from vein of arm; rapid manual dilatation of cervix and labor induced after 24 hours, twenty-two convulsions alternating with attacks of consciousness and coma (latterly); O. L. A. presentation; delivered by forceps; child lived, mother recovered.

I have attended three cases at full term. In one, the woman died from convulsions during and after labor, child still-born; in the second, convulsions ceased after delivery, mother recovered, but child still-born; in the third, convulsions began on the second day after delivery, mother recovered under medical treatment and child lived.

Hyperemesis gravidarum will at times assume a condition of such imminent danger to the mother as to demand urgently a premature delivery. In my experience it has been encountered more in the earlier months of pregnancy than in the later months and generally too early to deliver a viable fetus.

Case 1. Mrs. S; emesis began at the second month and continued more and more aggravated during six weeks following when after consultation with Dr. Swearingen she was taken to the hospital with a view to performing abortion; however, before this was done she developed pleuro-pneumonia and died.

Fibromata increase rapidly, due to the increased blood supply to the genitalia during pregnancy. Aside from causing pain, this increased size of the abdomen embarrasses the heart and respiration, while if situated between the presenting part and the pelvis, the fibroma obstructs the passage of the child. Therefore, it is more likely that the child can be safely delivered at the 32nd or 36th week per via naturalis than later when the obstruction may be so great as to demand Cæsarean section and myomectomy.

Case 1. Mrs. J. B. L.; accidentally induced labor at the 34th week by jumping from wagon. Fibroid tumor in upper right side of uterus anteriorly. Presentation L. O. A.; duration of labor six hours; it was necessary to check free bleeding following with continued doses of ergot; child (female) lived and mother recovered.

Probably a comparison of the prognosis between feet or breech presentation delivered prematurely and at full term will forcibly remind one of a number of infants saved at seven months, and eight months, while the fatality of these presentations delivered at full term seems enormous. I can recall from my cases of this kind of presentations, out of sixteen that happened prematurely, three infants were still-born; while out of twelve happening at full term, ten infants were dead; all of these mothers recovered. I believe that 25 per cent. or 30 per cent. of these ten fatalities to infants could have been avoided had labor been induced at the 32nd to 36th week, although the mortality rate was partly due to complications associated with the breech or foot presentation. In four of the cases there was placenta prævia; in one, the cord was around the neck, and the child almost decapitated—only the bones and ligaments of the cervical spine and the vertebral artery uniting its head to the body; in another, embryotomy was performed to release an arm impacted between the head and pelvis before

the head could be delivered; in four the forceps and prolonged anesthesia were needed to deliver the after-coming head; in two cases in which infants lived, persistent efforts to resuscitate child were demanded, although its head was delivered a few minutes after the body.

Obesity proves to be a factor in causing dystochia at times, and the question of inducting premature labor could arise especially in cases having a history of former difficult labor in which the child died.

Case 1. Mrs. C. B., one of my obese patients had two years previously been in labor for two days (during her first confinement), and finally delivered with instruments by a neighboring physician, the child being dead. In her second pregnancy I attended her from the early months. Pelvic measurements were normal externally, but internally accurate measurements were not obtained on account of fat obstructions. Labor was induced at the 36th week. After giving quinine repeatedly for twelve hours, child was delivered without forceps. O. L. A. presentation; chloroform administered fifteen minutes; the child (female) was asphyxiated, probably due to the immediate expulsion of the placenta following the body, and efforts made to resusciate it did not succeed; mother recovered.

Seldom, could conditions arise in advanced cases of pulmonary tuberculosis or carcinoma in which one would need to reckon with the questin whether to induce premature labor. Unless the continuance of pregnancy worked a peculiar hardship and suffering upon the mother, or some unusual legal circumstances made the saving of the infant especially desirable awhile before the death of the mother, I believe one would better wait expectantly with Cæsarean section in view to save the child whenever the life of the mother became in extremis.

Case 1. I attended a patient with advanced pulmonary tuberculosis who miscarried (accidentally) at the 32nd week, probably from the effects of coughing. The child lived, but the mother died after six weeks.

I trust that by your reflection upon the subject I have presented, and more attention to such in detail than I have compiled, not only will lives of infants be saved and mother's health conserved, but that the people will be educated to depend on the physician for more skill than that received from the midwife, and be willing to remunerate him for service on an accordingly higher plane; and let us not neglect in the fulfilment of our duty, to hasten to the support of such valuable ideas as expressed by Dr. Hirst in his address at the 1909 meeting of the A. M. A. advocating specialists in obstetrics, thereby bringing honor and fame to the meritorious and deserved prestige to the more or less obscure members who bear the brunt of the struggle in our altruistic profession.

REPORT OF ONE HUNDRED AND SIXTY ABDOMINAL HYSTERECTOMIES FOR FIBROMYOMATA.*

By I. S. STONE, M. D., Washington, D. C.
Surgeon to Columbia Hospital, Washington, D. C.

These operations have all been performed in Columbia hospital, and the series includes all of the cases available for classification from 1903 to January 1, 1910.

The list is a consecutive one in that hospital, and operation was in no instance denied to anyone applying for relief, who was not already so hopelessly ill that it was unsafe to use anesthesia. We believe all such patients died soon afterward, before leaving the hospital.

In this hospital we have two races—white and black—in nearly equal numbers. Of the cases reported, 70 were in white, and 90 in black women, or those with dark skin. Nearly all of the women under thirty years of age were of the latter class, or "colored." The youngest white woman was 24 years of age, while the youngest colored woman was 21. Of the 22 cases under 30 years of age, 19, or over 85 per cent., were in women of this color.

The following summary shows the age of our patients:

Under 30 years	22
Between 30 and 40	67
Between 40 and 45	32
Between 45 and 50	30
Over 50	7
Not stated	2
	160

Technique and Suture Materials Used.—Supra-vaginal hysterectomy was the operation of choice in a large majority of instances. Total hysterectomy is, however, growing in favor, as our operative list shows. We generally double-clamp all vessels, cut away the tumor and tie with a double No. 2 iodine catgut suture. We emphasize the word suture,

*Original abstract of paper read before the American Gynecological Society.

for we have a preference for sutures, rather than for ligatures, as they cannot slip off. The use of silk was dicontinued in 1898, after a long tedious case of infection which necessitated the removal of the ligatures before a cure was effected. The Tuffier angiotribe followed this, and always proved equal to the demands upon it, as in no case was its use followed by hemorrhage.

The various quick methods of operation, such as Doyen's, Kelly's down on one side, then across and up on the other, as well as his "bisection method," have all been tried. They are rather attractive and somewhat spectacular, but have not greatly impressed us with their efficiency. The bisection method has two serious objections to overcome its one excellent feature. Our first objection is that blood vessels may be injured before they are located, and the other is the possibility of spreading infection from the open and exposed uterine cavity. The bisection method was once tried in a difficult myomectomy which resulted in a fatal injury to a vessel at a point below the broad ligament, where it could not be reached.

The vagina and cervical canal should be sterilized with iodine before the operation is begun, as in this manner supra-vaginal amputation can be changed to a total extirpation, if desired. We no longer use gauze drainage in any hysterectomy operation. The rubber drainage tube answers every purpose.

As a rule the ovaries have been retained in women under 40 years of age when they appeared to be normal. At least, one ovary, or a part of one, was always retained unless its condition absolutely indicated its complete excision. We have known of only two instances when the symptoms subsequent to operation demanded the removal of one of these retained organs, while on the other hand it is exceptional that women do not only regret the loss of their ovaries, with the functions incident thereto, but are delighted and gratified when told that these characteristic organs are still in position.

The ureters are easily exposed during the operation by taking them at the pelvic brim and following them along to the broad ligament and bladder. They need not be widely separated from their bed, and their blood supply is not easily disturbed, while the satisfaction obtained by inspecting them is immeasurable. We have never injured a ureter in our entire experience in either supravaginal or total hysterectomy, for fibro-myomata.

Complications Rendering the Operation Difficult.—By far the greatest operative difficulty is with the results of salpingitis; and next to this, pelvic peritonitis from all causes, including that due to infection and necrosis of the tumor. Tubercular or malignant conditions, however extensive and difficult to manage, are not so often seen. In 46 of our cases, either pyosalpingitis, salpingitis or hydrosalpinx caused the adhesions and lengthened the time of operation.

After the abdomen has been opened we generally examine the gall bladder and pylorus, and also note the position of the stomach, transverse colon and right kidney. The appendix is inspected and removed if necessary just before closing the abdomen, and if the sigmoid and transverse colon need elevation and suture, this is done at the same time.

Anaemia—Chlorosis.—These conditions require attention and should always be studied before we resort to operation. But the patient should be kept in the hospital during this time of preliminary treatment. The use of the salt solution by the rectal method has done much for the profound anæmia which we see associated with fibromyomata. The percentage of hemoglobin has frequently been raised to a safe operative point in this way.

Cancer and Sarcoma.—We have not met with as many cases of association of cancer and sarcoma with fibromyomata, as some writers tell us they have seen. Dr. J. S. Neate, our pathologist, examines all specimens and cuts sections, as deemed best to determine the exact nature of the growth. He has examined 374 tumors, of which 242 were fibromyomata, 125 were carcinomata, and 7 were sarcomata.

He reports:

Angioma in the center of fibromyomata, 1.
Purulent invasion in fibromyomata, 9.
Adenomatous development fibromyomata, 2.
Cancer in "stump" after hysterectomy, 2.

We have notes of the following complications:

Cancer of cervix associated with fibromyomata, 2.

Sarcoma of cervix associated with fibromyomata, 3.

Cystic, mucoid, hyaline, myxomatous, fibromyomata, 5.

Calcareous degeneration, 5.

Necrotic or necrobiotic, 6.

Adeno carcinoma, 2.

Pregnancy, 3.

Post-operative dilatation of cervix for drainage, 3.

Post-operative pneumonia, 0.

Post-operative pleuritis, 2.

Post-operative phlebitis, 5.

Post-operative cerebral embolism (rec.), 1.

Post-operative pulmonary embolism (fatal), 1.

Post-operative ileus (fatal), 1.

Post-operative hemorrhage, 0.

Deaths.—

In 1893, 1 death.
In 1897, 2 "
In 1899, 2 "
In 1906, 1 "
In 1907, 1 "

7

		Deaths.	Mortality.
Supra-vaginal hysterectomies,	130	6	4.61 per cent.
Total hysterectomies,	30	1	3.33 per cent.
*	160	7	4.37 per cent.

Following the example of many surgeons, we append our latest results:

From June 14, 1899 (case 43), until January 1, 1910, we have had 114 abdominal hysterectomies with 2 deaths, or 1.75 per cent. mortality.

Deaths.—1. Case No. 3. March 25, 1903. Mrs. A., colored, aged 37, was in good condition when she entered the hospital. Her tumor reached above the umbilicus. Extensive adhesions and complications, due to salpingitis made operation difficult. There was much traumatism, with resulting shock and peritonitis. Death was due to peritonitis.

2. Case No. 26. April 17, 1897. M. This patient had a simple operation with no embarrassing complications. She had a slight infection about the stump, and died suddenly of pulmonary embolism on the 12th day.

*There were thirteen operations for fibromyomata, in which our intention was to perform hysterectomy, but which were completed as myomectomies, with one death.

DIAGNOSIS OF GASTRIC ULCER.*

By A. G. COUMBE, M. D., Vienna, Va.

Most of the cases of gastric ulcer which have come under my observation have been seen in consultation. In these it was merely a matter of confirming a diagnosis that had been previously made.

Gastric ulcer is a disease much more frequent than the clinical symptoms would indicate since the reports of autopises go to show that there is ulceration of the stomach in about 5 per cent. of all such autopises, and these are evidenced by the open ulcer or the cicatrix of an ulcer.

Gastric ulcer is a process of necrosis and is not a true ulcer. These ulcers are either round or oval and from one-eighth of an inch to two inches in diameter; they are usually single, but may be multiple. Berthold reports a case in which 34 ulcers were found.

The most common seat is the posterior wall of the pyloric portion of the stomach near the lesser curvature; as the ulcer grows older there is a red cell infiltration, showing a tendency to repair, and as the healing takes place fibrous tissue forms, contracts and thus puckers the mucous membrane and frequently causes stenosis with its chain of symptoms.

Many theories have been advanced as to the direct probable cause, only two of which I will mention, that of Virchow, who advocated the theory of embolic infarct, and that recently advanced by Wienland, who maintains that there is normally found in the gastric mucosa an antibody—an antipepsin—which opposes the digestive action of the acid gastric juice; he holds that for some unknown reason there occurs in certain areas of the gastric mucosa, a deficiency of these antibodies and that the stomach, thus unprotected is readily injured by the corroding effect of the gastric secretion.

It has been frequently reported that gastric ulcer is much more common in the female than the male, but in a series of cases reported by Gibbon and Stewart, of Philadelphia, a larger number of cases were found in the male.

Chlorosis and the various forms of anemias play a very important part as an etiological factor, and in some instances, of extensive burns, gastric ulcer has developed as well as ulceration of the other viscera.

*Read before the Medical Society of Northern Virginia and District of Columbia, May 18, 1910.

The symptoms of the disease are indeed exceedingly variable, for an ulcer of the stomach may run its course and heal without presenting any symptom whatever, and the lesion is only discovered accidentally post mortem. In other cases the symptoms are very vague and are only those that are attributed to the ordinary dyspepsias.

The typical classical symptoms are rarely seen and are the peculiar pain, tenderness on pressure, hemorrhage, vomiting and the evidence of dyspepsia.

The pain is the most constant and characteristic. It may be only moderately severe, of a gnawing or burning character, coming on when the stomach is empty and usually very intense a short time after the ingestion of feed; it comes in paroxysms and is located at the zyphoid cartilage and may radiate to the side or through to the back; there is tenderness on pressure at or near the zyphoid and in some few cases the pain is dissipated by the ingestion of food.

Hemorrhage is seen in about one-third of the cases and is usually in sufficient quantities to be vomited; but if the quantity is small it passes with the stool and can be usually detected, by the tests for occult blood.

Vomiting is nearly always present, and there is anorexia which is not relieved by the usual remedial measures.

The tongue is generally clean, but there is a progressive loss of weight due to inability to take and assimilate the necessary amount of food.

The early diffential diagnosis is exceedingly difficult and frequently impossible; in fact the diagnosis is frequently not made until the disease is manifest by some complication—this is true of all the diseases of the organs of the upper abdomen and is due to their close relations anatomically as well as their co-ordinate physiological action; as a result, the diseases affecting these organs cause symptoms which are very similar and confusing.

From gastralgia and the nervous dyspepsia we have a history of neurasthenia, and the pain is relieved by taking food; there is absence of hemorrhage, there is no localized pain and the vomiting does not releive the pain as it does in ulcer.

In gall stone the general health does not suffer until there are complications; there is no evidence of hemorrhage; the pain which is severe has no relation to the ingestion of food; the onset is sudden and jaundice is sometimes present.

In cancer of the stomach the pain is continuous and dull and very depressing; vomiting is irregular; gas is accumulated in large quantities soon after the ingestion of food, and blood is common.

The Mayos have made some extraordinary reports as to the frequency with which cancerous degeneration of ulcer of the stomach is found.

In cancer we find the Boas-Oppler bacilli and the gram positive stool.

In conclusion, I wish to call attention to the importance of history—taking in this condition particularly; and in that connection I wish to quote from the paper on "The Early Symptoms of Upper Abdominal Disease," by Dr. John B. Deaver, read before the section on Surgery of the American Medical Association. "I want to emphasize the importance of a careful history taking in all these cases. It has far more weight than anything that we can elicit in the way of physical signs, and always merits our closest attention. Apparently minor points often are of the greatest value in diagnosis, though we may fail to recognize their importance until they are placed in proper relation to the other data at hand. In too many instances the medical attendant approaches the case with a preconceived idea of the diagnosis, based on the hasty summing up of the most striking symptoms. The patient's own description of his case is then distorted, unconciously perhaps, to conform to a diagnosis already considered as definite. Moreover, there is often a disposition on the part of the physician to pay attention to the supposed cardinal signs, and as a result the patient forgets or neglects to mention the very facts, apparently trivial, which are of most moment. Careful definite questioning is of prime importance in eliciting a history of illness, but it should not be so directed that the patient is led to give his answers in accordance to the ones which are apparently wanted. A leading question is often a good one, but it can be made a misleading one by too much insistance on it.

"I have found it to be of just as much value to follow a routine method of history-taking, as to follow a regular method of physical examination."

ARE WE DYING OUT?

By J. G. B. BULLOCH, M. D., Washington, D. C.

The question as to whether the descendants from the original settlers in America are gradually dying out can be answered in the affirmative, for it appears that the descendants of those who founded this country are gradually becoming less in numbers. This seems a great pity for there was so much of sterling worth in those who braved disease, the foe and many hardships and laid the foundation of these United States.

The cause of decline in the birth rate is somewhat difficult to define. Many will not have children, some cannot, and those who do seem to be delicate, and others again cannot, and others again will not nurse their offspring. Statistics do not always decide a point, but aid us in determining probabilities. Recently I took a survey of about 50 medical men who were associated closely together and here is what the calculation shows. These men were from different parts of the country and therefore there is some significance in the assertion that we are really becoming, as a race, extinguished. Of the 50 physicians, here are approximately the correct figures:

9 of them had 1 child.
9 of them had 2 children.
5 of them had 3 children.
4 of them had 4 children.
4 of them had 5 children and over.
5 of them were not married.
14 of them had no issue.

50 in all.

We see here that 23 only had about from one to three children, that 19—over a third—had none, and the balance ranged a little higher. Who cannot remember the names of many families, now extinct in male line, and does it not seem a pity that we should be on the wane?

Let me plead with the doctors to frown upon abortions and to accentuate a spirit of brotherly love. Let us go back to the day when the doctor was an important man in his town, a big man in the country and an honored citizen in the city. Let us go back to the old days of courtesy and ethics. Do not go into a house and pitch out of the window medicine left by a brother practitioner. Do not say you can cure certain diseases you know are incurable. Do not say: "Madam, had I not come just at this moment your child would have been dead," and "this one remedy is the only one which will save him." Do not tell a poor heart-broken mother that her child has a disease which you know it has not. Don't say to the poor old mother: "Your child is *threatened* with diphtheria, pneumonia, etc.," when you know this to be untrue, for one either has a disease or has it not and cannot be threatened with it.

Let us arouse ourselves and teach the young man to be moral and tell the parents to do the same and, above all, take a stand that the most honored woman in the world is the one who has a loving family around her and teaches them to be good citizens and God fearing, and law abiding. All love to woman, the mother, wife, and friend of man.

It is to be hoped that ere long the physician will be paid by the State and receive no fee. Then will we see jealousy in a measure cease and then as brothers in the common cause we can get together and faithfully, courageously combat a disease and forge ahead in the interest of one great enterprise in the cause of humanity.

Correspondence.

The Local Medical Society and Public Instruction.

Mr. Editor:—During the past winter and spring the Lynchburg Medical Society has undertaken a course of public lectures or health talks, feeling that in addition to the work it was doing for its individual members there was a certain duty it owed the general public. Much of the ignorance in regard to ordinary matters of public health was not because people were not willing and anxious to receive instruction, but due to the failure on the part of the medical profession, as the only teachers, to impart this knowledge. Most appreciative audiences attended these meetings. The society feels so much encouraged over their success that a second series will be begun next winter.

Here is a line of work in which all of our local societies can find most valuable employment—a virgin field from the standpoint of the medical profession, for be it said with shame that we have failed sadly in our duty

here. We have left it to the versatile, wide-awake charlatan, to the soulless patent medicine sharks, to the osteopaths who, through newspaper advertisements, paid magazine articles, etc., in the guise of public benefactors, have hawked their death dealing wares and taken their toll of human blood from poor deluded sufferers who are trying to throw off the shackles of disease and evade the grim destroyer, Death.

We have the knowledge necessary to decrease enormously the death rate and at the same time to increase proportionately the average of health. What we lack is the power to apply this knowledge; we have not the control of the necessary agencies. The remedial measures in question are entirely those of preventive medicine; and they require the co-operation of educational and social forces, the formation of public opinion, legislative enactments and administrative control. We must teach the public that the health of each citizen is, from a practical standpoint, the best investment that can be possibly made; that it is cheaper for a community to keep its citizens alive and well than to pay the cost of sickness and burial—not even considering the care of the widow and children. Surely, as a nation, we do not care less for the health and lives of our citizens than that of our domestic animals. Millions are spent each year to investigate and prevent disease amongst sheep, hogs, cattle, while thousands of useful human beings die of preventable diseases.

It has been estimated that there are every year three million people ill from diseases that are absolutely preventable in this country. This means a great pecuniary loss to our nation, and translated into dollars and cents would involve many millions of dollars.

As said before, we possess the knowledge necessary to greatly correct and better these deplorable conditions. But what we need is an enlightened public opinion. We, as the only teachers of the public in medical matters shall have to inaugurate a movement of public instruction. The science of medicine is no longer enshrouded in deep mystery. The cures wrought by physicians under the searching light cast by modern science bear no longer witness to supernatural powers. Each man has within him a wonderful chemical laboratory that should he follow the simple laws of nature, would enable him to combat successfully most all disease; and the fatalism once felt towards many diseases has now given place to the most cheerful optimism. We are to teach the public how to avert sickness and how to cheat the grim destroyer out of many years beyond the allotted time. We are to become the "apostles of health."

In the past our profession has been entirely too modest in their efforts to enlighten the public, apparently seeming to think it beneath their dignity, an assumption on the part of the people, or perchance the fear of overstepping the bounds of propriety and ethics; and yet the public has always looked to us, their family physicians, for this knowledge, and are eager and anxious to receive it; are willing that the local medical fraternity, which means the medical society, shall lead in all matters relating to health and the prevention of disease. We cannot do this public work as individuals, for the misunderstanding and jealousy that would be aroused, both in the profession and out, would ultimately result in more harm than good. But as a State organization, through each local society, the good work can be carried on in an earnest and systematic manner. The program committee of each local society, having the full arrangements for each meeting, securing the speakers and making announcements through the public press.

As to the latter, I want to say that the hearty co-operation of the public press can be easily secured; and its value in creating public sentiment, as we well know, is greater than any other agency. In this way all should learn, not only how not to be sick, but how each one may keep in the best condition, that he may bring to his community and his State the utmost possible return.

Preventive medicine presents a large field. It has been—it is being—neglected. The county society here can cultivate public opinion, can highly educate it in matters sanitary and hygienic, instilling into it the great fact of the preventability of certain diseases and the criminality of carelessness and the value of care. This education is necessary before anything can be done in the way of reform. With it, improvement follows necessarily. The people must be taught the curability of tuberculosis; that a diagnosis of consumption does not carry with it a death sentence. They must

be taught the great value of light and fresh air before they will take any means towards either the care or the prevention of this disease. The anti-vaccination movement will find but little following and will be futile in results if the value of vaccination as a preventive is constantly circulated, if it is shown how not more than a century ago small-pox was the worst scourge of the human race, numbering its victims by the millions; that it was the most common and the most dreaded of all diseases, and how, since the wonderful discovery of Jenner, it has dropped into insignificance as a cause of death. In the German Empire small-pox is practically unknown, whereas, before vaccination was made compulsory, many thousands died annually.

No stream will be higher than its source, nor can a polluted source give pure water. The demands of a people will not rise above their civilization, culture or education. Laws will not be enforced—they cannot be if the people are opposed to them. If the people are fully in sympathy with their sentiment the laws will not need enforcement. It is better to create a healthy public opinion than to attempt results by making laws. Physicians can control public opinion. I believe this firmly, in spite of the apparent difficulty we have in securing proper medical legislation. As individuals, there is no class of men that have the influence of physicians. The family doctor above all others, has the confidence and trust of each family. Taking advantage of this fact, think of the enormous power for good that a thoroughly organized profession would have in educating the people in regard to public health questions! How many thousands of our public school children are physically unfit to receive an education! How many millions of dollars are being wasted annually in an attempt to educate children that are defective. Bad eyes, decayed teeth, poor hearing and diseased throats dwarf them physically and mentally, and a race of criminals and mental defectives are being produced. By proper medical supervision of our schools these abnormal children can be developed into bright, healthy, happy little fellows, just as normal as other children. It would seem that parents should not have to be told that they need medical inspection in their schools for the prevention and restriction of epidemics, and the ordinary communicable diseases, and thus save their children falling prey to scarlet fever, diphtheria, whooping cough and the like.

These are problems that our profession will have to work out. All the complex questions incident to our rapidly increasing population, both rural and urban, must be met and worked out by the medical profession. Our rivers, which must be the source of water supply for future generations, are rapidly becoming converted into open sewers, poisoned, as are the soil and air, from ignorance more than from greed upon the part of our municipalities, corporations and individuals. An educated public sentiment, which must originate and be directed by the medical profession, is needed to demand and enforce preventive and remedial legislation in regard to these and other public dangers. The educated physician of to-day is more of a public official than a private individual. He has a far wider field than his own personal clientele, for there are duties and responsibilities to society that the old-time doctor knew little of. And this is well. Through it, both our profession and the public will profit. The standard of public health will be greatly improved, human life will be regarded as the most precious national asset; and, as to the doctor, it will elevate him in the sight of the people and increase their dependence upon him—doing away with that old, yet groundless, suspicion that the physician has some ulterior motive or selfish end whenever he attempts anything for the public good.

In conclusion, I want to recommend the work of public education to every local medical society—for it is, in reality, their most important function. The influence of every local society is directly commensurate with the interest which it shows in the public welfare, and the efforts which it makes to enlighten the public regarding modern methods of combating disease and the aims and purposes of the medical profession in this direction. If our local societies will hold one or more meetings to which the public is invited, devoting these evenings to public instruction, a long step will have been taken in the education of public opinion and the securing of proper laws and health regulations by which preventable diseases may be abated.

V. V. Anderson, M. D.

Lynchburg, Va., May 27, 1910.

Analyses, Selections, Etc.

Therapy by Bacterins and Tuberculins in Mixed Suppurative Bone and Joint Disease.

In a joint paper by Drs. De Forest Willard, Professor of Orthopædic Surgery, University of Pennsylvania, and B. A. Thomas, Assistant Instructor in Surgery, University of Pennsylvania, Philadelphia, read before the recent session of the American Surgical Association, the authors recount their experience of two years' duration in the treatment by bacterins and tuberculins of tuberculous bone and joint disease, complicated by mixed pyogenic infections. The feature of the treatment consists in the alternation of bacterin and tuberculin inoculations in the mixed suppurative type of the disease, as spinal caries, tuberculous hip joint disease, etc.

They do not contend that bacterin therapy is a "cure all," nor that when indications for surgical intervention exist they can be disregarded and active immunization substituted. They wish, however, to emphasize the fact that the *accessory* employment of bacterin and tuberculin in certain cases stimulates the tissue cells of the organism to the production of specific anti-bodies to assist the bodily defenses in antagonizing and combating the given infections. On the other hand, the incompetent, inexperienced and careless use of these measures will not only fail to effect a cure, but will inevitably lead to disaster and thrust a therapeutic measure of worth into disrepute. Bacterins, particularly tuberculin, are more potent agents for evil than for good, unless wisely administered. They are invaluable aids in competent hands, and when so employed these cases do better with than those treated without bacterins; their detention in the hospital is shortened, and complications, if they occur, are fewer and less severe.

The authors present two definite clinical types of disease illustrated by charts, in which therapy by bacterins and tuberculins is recommended. The first type is represented by the case in which already at the time of operation a mixed infection of hematogenous or exogenous origin has been superimposed upon suppurative tuberculous caries. The second type is manifested in the evacuation and drainage of a "cold abscess," in which case almost invariably after a lapse of fifteen to twenty days, the temperature suddenly rises and symptoms of a mixed infection ensue.

These types of disease are of a serious character, not those mild cases which would recover following simple incision and evacuation, nor those neglected ones of prolonged suppuration, characterized by bacteremia, grave sapremia and amyloid disease, but those with chronic localized processes, the treatment and prognosis of which have been greatly handicapped by the intervention of various pyogenic bacteria.

The authors have found that in the course of weeks the various pathogenic bacteria isolated from the suppuration vary and for that reason they insist upon the employment of autogenous bacterins, the pus being cultured and recultured at least monthly. As soon as the patient's temperature falls to 100 degrees or preferably lower, under the administration of bacterins, inoculations with tuberculins, either alone or alternating with bacterins for a time, are begun. They conclude, judging from the cases under their observation that better results have attended the process of active immunization, when just as in tuberculin therapy, pure and simple, the treatment has been commenced with relatively small bacterial inoculations, progressively increased to the therapeutic limit, rather than by recourse to large dosage, thereby in the former case establishing immunity, and in the latter avoiding anaphylaxis.

Studious observations of the clinical symptomatology have always sufficed to control the treatment, the opsonic index proving not only impractical but unreliable.

Book Notices.

Propaganda for Reform in Proprietary Medicines. Sixth Edition. 12mo. 292 pages. 1910. American Medical Association Press. Paper, 10 cents; cloth, 35 cents.

This book contains the various exposes of nostrums and quackery which have appeared in the *Journal of the American Medical Association* at various times. While, in the main, it is an exceedingly valuable book as showing the composition of the so-called proprietaries, we are satisfied that in some cases the prejudice of the

writers denies any value to the preparations the book condemns.

Hand-Book of Therapy. 12mo. 421 pages. Cloth $1.50. Chicago. American Medical Association. 1910.

This is practically a compilation from the therapeutic pages of the Journal of A. M. A., appearing during the past three or four years. The book is of convenient size for the doctor's satchel. The Index of 15 pages gives ready reference. Mention of unusual drugs has been purposely omitted—which we regret, as a number of unusual drugs not mentioned in the book are of undoubted value. Tables of miscellaneous data have been well compiled. A list of new and non-official remedies which have been accepted by the Association is given.

International Clinics. Vol. I. Twentieth series. 1910. Edited by HENRY W. CATTELL, A. M., M. D., Philadelphia. Philadelphia and London. J. B. Lippincott Co. 1910. 8vo. 301 pages. Cloth.

This is the first of the "quarterly" for 1910, of "Illustrated Clinical Lectures and Especially Prepared Original Articles" on medicine, surgery, therapy, etc., which we have had so many occasions to describe in general and to commend to the attention of the practitioner that it is only necessary to call attention to the fact that the book continues to be as valuable as past volumes.

The Conquest of Disease Through Animal Experimentation. By JAMES PETER WARBASSE, M. D., Surgeon to the German Hospital, Brooklyn, etc. New York and London. D. Appleton & Co. 1910. 12mo. 176 pages. Cloth, $1.

Barring the annoyance of having to cut the pages, when one undertakes to read this book he is not apt to stop until he finishes it. It portrays the fallacies of the so-called "anti-vivisectionists" so plainly that one is surprised that laws anywhere should have been secured to prevent proper animal experimentation. Of course, simply cruelty to animals is not countenanced; but when the value of vaccination, the value of anti-diphtheritic serum, the results of adrenalin treatment, the uses of thyroid extract, etc., are pointed out it seems strange that any one should object. Indeed, the study of functions of various organs must be done by vivisections. No one objects to killing the rabid dog, the snake, etc. But a peculiar sentimentality pervades with reference even to experimentation on guinea pigs, etc.—however, humanely conducted for the sake of science. But let the book be read, and many facts will be brought out which well support the doctrine of animal experimentation. It is a book that educated laymen should read—especially those who hold to doctrines of anti-vivisection.

New and Non-Official Remedies, 1910. 12mo. 256 pages. Cloth, 50 cents; paper, 25 cents. Chicago. American Medical Association. 1910.

This book contains descriptions of the articles which have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association prior to January 1, 1910. A slip comes with the book stating that "Supplements will be issued to New and Non-official Remedies, 1910, containing additions, corrections, omissions, etc.," free to those who having the book, fill and return the blank. The Index covers 34 pages.

Modern Medicine: Its Theory and Practice. Edited by WILLIAM OSLER, M. D., Assisted by THOMAS McCRAE, M. D., Assistant Professor of Medicine and Clinical Therapeutics, Johns Hopkins University, etc. Vol. VII. **Diseases of Nervous System.** Illustrated. Philadelphia and New York. Lea & Febiger. 1910. 8vo. 960 pages. Cloth, $6 net; leather, $7 net; half Morocco, $7.50 net.

This volume completes the great system of Modern Medicine, made up of original contributions by American and Foreign Authors. Each volume groups, as far as practicable, diseases of the same general character. Volume VII., now before us, concerns itself with diseases of the nervous system, covering in effect all phases of the subject. While nothing but praise or commendation could be passed upon any volume of the System as it was issued from the press, there is one objection to such extensive systems, extending over several years from issue of the first to the last volume, and that is by the time the last is issued, the first needs revision to keep up to date. So that, except as subscribers were obtained early in the issue for the series, it is hard to secure many towards the end of the issues. Each volume should have a distinct price of its own, so that parties may purchase what is needed, without being compelled to buy the whole series. Such business criticism, however, does not affect the true value of each volume. Besides the Special Index for Volume VII. of 39 double column pages, there is also a general Index for the entire seven volumes of about 55 double column pages.

Editorial.

Social Features of Medical Societies.

There are evidently many who attend sessions of State Medical Societies and like organizations chiefly because of the social features expected. Others care little or nothing for such things—preferring the continued scientific proceedings, but yield to invitations to bauquets, excursions, luncheons, etc. There are still others who, during recess hours between meetings, prefer the short hours for rest or quiet social gatherings in their hotel lobbies, or for calling on personal friends, or attending to shopping, etc. So that no program that can be made by the local Committee of Arrangements will be altogether satisfactory to every visiting member of the Society.

It has been the very general custom of the local profession of the communities in which sessions of the Medical Society of Virginia have been held to provide for social entertainments of visiting members and ladies accompanying them. When meetings in the same city were several years apart and the communities of doctors large enough this plan was not a material monetary tax on them; for the amounts subscribed by the individual doctors for the purpose of social entertainments about balanced their expenditures in attending several sessions in other places. But the Virginia Society has become so large that there are now only two or three cities competent to afford altogether satisfactory hotel accommodations for a full attendance of members and other visitors. Such a fact compels sessions to be held too frequently in the same city to expect an almost annual taxation of the local profession for expensive general social entertainments.

Recognition of this fact suggested the propriety on the part of the Society itself to *request* the local profession of a city in which an annual session is to be held hereafter not to provide for special entertainments, banquets, automobiling, etc. If taxation of the local profession becomes practically an annual matter for such entertainments, it will soon become oppressive on many, and the cordiality of the welcomes will lessen.

For a society the size of the Medical Society of Virginia we see no remedy for the expensive custom of the past for those who wish to participate in specially planned expensive social features, other than that such parties should subscribe their proportionate amounts for such pleasures—and let the local committee provide for such entertainments out of the total amounts so subscribed. Such a plan is customary in sections of the American Medical Association and other large bodies. Members in attendance who wish to participate in such things are each assessed $5 or more for "section dinners" or "lunches" or other special pleasures. It is enough for the local profession of the place in which the society is to meet to be taxed to pay expenses of hall of sessions, the registrars of attendance upon sessions, to give their time as far as practicable to contribute information to inquiring members, and the like, and to provide for such other moderate expenses as are not in any way oppressive to the local profession.

There is nothing *prohibitive* in the suggestion of the society to prevent some form of general entertainments. But visitors should not attend sessions simply in anticipation of the social pleasures without being willing to contribute their due part for them.

The Association of Surgeons of the Southern Railway

Held its annual session May 24-26, at the Jefferson Hotel, Richmond, Va., Dr. Chas. H. Starkel, of Belleville, Ill., presiding. There was an attendance of more than 200 representative medical men from all States traversed by the Southern Railway. Though many interesting, scientific papers were read bearing on troubles most commonly to be met with in railroad accidents, the members seemed bent upon enjoying themselves socially, and too much praise cannot be given the local committee of arrangements, Dr. Jos. A. White, chairman, who, with the special help of Drs. Geo. Ross and J. C. Walton, of Richmond, provided most attractive entertainment for both the doctors and their ladies. The appellation of "a jolly, good fellow," so deservedly applied to the chief surgeon of the road, Dr. W. A. Applegate, of Washington, D. C., might well have been given each and all the members present, as each one contributed his share towards making the Richmond meeting one long to be remembered.

Next year the association will meet in Mobile, Ala., with Dr. Wm. C. Day, of Danville, Va., president, and Dr. J. U. Ray, of Woodstock, Ala., secretary-treasurer, which office he has most efficiently filled for many years.

University College of Medicine, Richmond.

We are pleased to note a very decided progress made by the committees in the solicitation of subscriptions for the rebuilding of this institution. The architects have about perfected their plans and drawings, and the Building Committee has visited several of the more recent colleges, North, so as to receive such additional suggestions as will make the plans more perfect. The merchants of Richmond are taking an active hand in securing subscriptions, recognizing the great benefit to the commercial interests of the city which such an institution will bring.

St. Luke's Hospital, Richmond.

Notwithstanding the very large capacity of this institution, for surgical patients, Dr. Stuart McGuire, surgeon in charge, finds it necessary to add an additional building, to accommodate the number of patients constantly coming in. During the present summer the building adjoining the hospital, now used as the Nurses' Home, will be so remodeled as to make it a part of the present building; and the building adjoining this on Grace street, has been purchased and will be converted into the Nurses' Home.

The International Dairy Federation

Has sent out a paper offering a prize of $100 for the best work upon the comparative nutritive value of raw and cooked milk to be submitted to the International Dairy Congress. Papers should be forwarded the Secretary General of the Federation, 23 Rue David Desvachez, Brussels-Uccle, Belgium, not later than April 1, 1911. Further information may be obtained from Chief of Dairy Division, Bureau of Animal Industry, Washington, D. C.

Catawba Sanatorium.

As a result of the $40,000 appropriation made by the last General Assembly, the Virginia Health Department has placed the contract for such additional buildings at the sanatorium, that after September, it is hoped to accommodate 110 patients at one time. Owing to the average time allowed for treatment of a patient, this institution will then be able to care for about 400 consumptives during the year.

Alleghany County (Va.) Medical Society.

Ten physicians of Alleghany county met in Clifton Forge, May 3rd, and organized the Alleghany County Medical Society with the following officers: President, Dr. John C. Wysor, Clifton Forge; vice-president, Dr. Orville L. Rogers, and secretary and treasurer, Drs. Courtney Edmond, of Clifton Forge, and John W. Wallace, of Covington, respectively.

The American Medical Association

Is now holding its sixty-first annual session in St. Louis, Mo. Virginia delegates to the House of Delegates, American Medical Association, are Drs. J. Shelton Horsley, Richmond; T. C. Firebaugh, Harrisonburg, and Wm. E. Anderson, Farmville.

The Southwestern Virginia Medical Society

Will hold its next semi-annual meeting at Wytheville, Virginia, on the 28th and 29th of this month. Dr. J. C. King, of Marion, is president, and Dr. A. B. Greiner, of Rural Retreat, is secretary of this society.

The American Medical Editor's Association.

Among the many pleasures enjoyed by the members of this association at its recent St. Louis meeting, was an automobile ride by the representatives of the Peacock Chemical and Sultan Drug Companys.

Dr. R. E. Wine.

The many friends of Dr. Wine, of Prince William county, Va., will regret to know that in the latter part of May, his fine residence of 36 rooms was almost entirely destroyed by fire.

The Medical Examining Board of Virginia

Will hold its June meeting in Richmond, Va., on the 21-24, inclusive, in the building of the Medical College of Virginia.

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Original Communications.

REPORT OF 28 CASES OF GONORRHOEAL RHEUMATISM TREATED WITH VACCINES.*

By WILLIAM G. YOUNG, M. D., Washington, D. C.

Gonorrhœal rheumatism is the most frequent manifestation of systemic gonorrhœa. According to Keyes it occurs in about 1 per cent. of persons afflicted with urethral gonorrhœa. It is much more frequent in the male than in the female. It may occur as early as the fifth day of a gonorrhœa, but it is most common between the third and fifth week. It may affect any joint in the body. While many of the cases are monarticular, in the majority of the cases two or more joints are involved.

The micro-organisms may localize in the joint itself, or in the articular end of the bone. There are therefore two distinct types of the disease, namely, gonorrhœal arthritis and gonorrhœal osteo-arthritis.

Gonorrhœal arthritis may be mild or severe, depending upon the number and virulence of the invading micro-organisms.

In gonorrhœal osteo-arthritis bone rarefaction appears within the first few days of the disease, and can be shown with the X-ray. This furnishes a reliable means of differentiating between the two types of the disease. This is very important in attempting to make a prognosis in a given case.

Clinically, the onset may be acute or subacute.

In the acute variety there are pain, swelling, tenderness, disability, and some redness. There are no sweats. Fever is slight, if present at all.

When the onset is *subacute* there are moderately severe pain, local tenderness, some swelling, and considerable disability.

The course of the disease is characteristically prolonged. Even the mildest cases may last for months.

Nathan contends that there is no such thing as chronic gonorrhœal arthritis. To quote: "The gonococcus causes either an acute inflammation or it is entirely inert. There are no doubt recurrent forms, but these are not chronic; they are analogous to the cases of general reinfection, and analogous to the recurrent gonorrhœas of the urethra. * * * What has been called chronic gonorrhœal rheumatism is not the disease. A man has an acute attack of gonorrhœal joint infection; the acute symptoms subside, the pain disappears, and there remains nothing but a certain amount of stiffness. He has no pain when he is at rest, but as soon as he proceeds to use the affected extremity he again has pain and increased stiffness. If he tries to overcome the immobility by use, he soon finds that the joint swells and becomes sensitive. With rest, these symptoms subside, only to recur when he again begins to use the limb. * * * Such an individual is said to have chronic gonorrhœal rheumatism. He has deformity and either adhesions or bony change within the joint as the result of his previous gonorrhœal infection, but he has no active disease."

I have quoted at some length from Nathan's article, because, if his contentions are true, they have a very important bearing upon the treatment of gonorrhœal rheumatism with vaccines. If a patient is suffering from permanent changes in the joint it would be folly to attempt to cure him with vaccines. His con-

*Read before the George Washington Medical Society, March 19, 1910.

dition is one to be dealt with by the orthopedic surgeon.

Before the advent of serum and vaccine therapy, the treatment of gonorrhœal rheumatism was extremely unsatisfactory. Many of the mild cases recovered, but it was not uncommon for the severe cases to go on to permanent damage of the joint. Some of the measures formely recommended were iodid of potash, salol, oil of gaultheria, the application of splints, blistering, ichthyol ointment, iodoform ointment, aspiration of the joint, massage, douching with hot and cold water, and baking the joints. Some of the more recent measures are Bier hyperemia, opening and draining the seminal vesicles as practiced by Fuller, and intravenous injections of collargolum.

I take it that you are all familiar with the Wright vaccine therapy. It simply consists in the subcutaneous injection of killed bacteria, which are known as vaccines or bacterins, with the intention of increasing the protective forces of the body against living bacteria.

Since September, 1908, a period of about eighteen months, I have treated 28 cases of gonnorhœal rheumatism with gonococcus vaccines. The cases occurred in the genito-urinary dispensaries at the Providence and Emergency hospitals and in my private practice. As most of the cases were in dispensary patients, only 5 of the 28 cases being confined to bed, it was impossible to follow them as closely as one would desire.

Of the 28 cases, 26 were males and 2 females. Nineteen where white, 9 colored. The ages ranged from nineteen to forty-seven years.

The duration of the gonorrhœa prior to the onset of the rheumatism was from nine days to two years. The duration of the rheumatism before vaccine treatment was begnn was from four days to six months.

Many of the cases were mild, but some of them were very severe.

In 13 of the cases only 1 joint was involved. The wrist alone was affected in 3 cases; the ankle alone in 5; the knee alone in 1; the sacro-lumbar articulation in 1, and the sacro-coccygeal articulation in 1 case.

The joints most frequently affected were the ankle, knee, and wrist. The ankle was involved in 10 cases, the knee in 8, and the wrist in 7.

In 1 case none of the joints was affected. The trouble all seemed to be in the biceps muscle and its sheath.

The number of injections ranged from 1 to 15.

The dosage varied from 5 to 50 millions. Most of the cases received an initial dose of 5 to 10 millions, the dose afterwards being gradnally increased. In a few of the cases the initial dose was as much as 25 millions, and in one case the initial dose was 50 millions.

The frequency of the injections varied from every other day to once in two weeks.

There was no temperature reaction in any of the cases in which it was possible to keep a record of the temperature. Small doses were given in most of the cases with a view to avoiding any severe reaction. Some of the patients complained of feeling worse during the first twelve hours after the injection. They complained that the affected joints were more painful than before. In many of the cases where there was no general reaction, a local reaction was obtained, consisting of redness and pain at the site of the injection.

The injections were made subcutaneously in all cases—sometimes near the affected joint, sometimes in the arm, sometimes in the groin. Recently most of the injections have been made in the groin.

The injections have generally been given with a tuberculin syringe, which is an all glass syringe gradnated in hundredths of a c. c. With this syringe it is very easy to administer ter any size dose that may be desired. Ordinary aseptic precautions have been observed in making the injections, and so far no abscesses have developed at the site of injection.

Practically no other treatment was used in any of these cases. Only five of the cases were kept in bed. The other 23 were up and about all the time. There were no local applications of splints used in any of the cases. The idea

was to give the vaccine treatment as thorough a test as possible, and not obscure the results with any other form of treatment.

In 15 of the cases there was no treatment whatever of the urethral condition. Only 3 of the 28 cases received prostatic massage. Four were given urethral irrigations. The other cases were given urinary antiseptics internally, and a hand injection of either argyrol or protargol.

The results were as follows: Cases cured, 20. Improved, 5. Cases in which there was no improvement, 3.

All three of the cases showing no improvement might very properly be omitted from this series. One of them received only one injection of vaccine. He reported back two days later, and was then lost sight of. Another one of these cases received three injections during a period of ten days and then left the city. The third case showing no improvement was a case of so-called chronic gonorrhœal rheumatism, in which the symptoms were probably due to fibrous change following a former gonorrhœal rheumatism.

Of the cases that were improved but not cured, two received only one injection each, and two received but two injections each and then disappeared. The fifth case of this class received 10 injections during a period of three months. The patient would not consent to come into the ward and stay in bed, and he was very irregular in his attendance at the clinic. Of course, it is impossible to say that these cases would have been cured if they had continued treatment long enough, but it is certainly true that the vaccines were not given a fair trial in any of the cases that were not cured.

Stock vaccines were used in all the cases in this series.

The opsonic index was not taken in any case, the clinical symptoms following the injection being used as the guide to dosage and frequency of administration. If there was no reaction, or only a slight reaction after the first dose, a larger dose was given next time. A marked reaction followed by no improvement was taken as an indication that the initial dose had been too large, and the next dose was smaller.

Practically all authorities agree that the original gonorrhœal focus, usually in the prostate or vesicles, should be vigorously attacked at the same time that the vaccine treatment is being used. This may do no harm in cases where the gonorrhœa is of long standing, but in several of the severe cases in this series in which active treatment of the gonorrhœa was attempted, such as irrigation of the urethra or massage of the prostate, or both, it seemed to make the patients decidely worse. It certainly seems more rational to try to increase the protective forces of the patient by injecting dead bacteria in known quantities and at regular intervals than to run the risk of spreading the infection still more by manipulations of the original focus of infection.

Important aids to the vaccine treatment are rest in bed, protection of the joint, and the Bier hyperemia.

1315 *N St., N. W.*

X-RAYS AS A FACTOR IN PROGNOSIS IN JOINT INJURIES.*

By A. L. GRAY, M. D., Richmond, Va.
Roentgenologist to the Virginia Hospital.

The value of X-Rays in the diagnosis of conditions involving the bony structures composing a joint, is too well known to admit of discussion in such an assembly as this, but too little stress is laid on what may be foretold as to the probable outcome of the treatment of these injuries, as regards the usefulness or symmetry that will follow. Careful observation and the comparison of radiographs of cases of joint injury together with the subsequent history of the case, should enable the rœntgenologist to fortell with a fair degree of accuracy the result following the proper line of treatment.

The surgeon from experience far from uniformly satisfactory, has come to dread fractures perhaps more than any other condition

*Read at a meeting of the Tri-State Medical Association of Virginia and the Carolinas, Richmond, Va., February, 1910.

with which he has to deal. One of our best men has said that when he began the practice of his profession, he was "Quick to run to any case of fracture that summoned" him. After years of experience, however, his "tendency is to run in the opposite direction." Cases of bad result following the treatment of fracture, seldom die, and a few move from the vicinity of the surgeon who treated them; they appear when he leasts expects them and present themselves as living monuments to his work. The old saying that "a bad sprain is worse than a fracture," was in days gone by, a very trite one; with the penetrating eyes of the X-Ray machine, however, we are now enabled to disprove that theory.

The joints, injuries to which the rœntgenologist is called upon to determine most frequently, are the wrist, elbow, shoulder, hip, ankle, and knee; and of these the one which the surgeon probably dreads most, is the wrist.

The Wrist.—Unfortunately this joint is not hidden by clothing and any deformity or impairment of function, is constantly in evidence. There are no fractures followed oftener by unsatisfactory results than are the common fractures of the lower end of the radius. The familiar "silver fork" deformity and deviation of the hand to the radial side, is only too frequent, following even the most careful and skillful surgical treatment.

An X-Ray examination, properly made, should enable the surgeon to inform the patient or his family, whether this fracture can be completely reduced, and whether after reduction it is probable that the position of the fragments will be maintained, or whether there is apt to be re-displacement. It should also enable him to say with considerable certainty, to what extent, if at all, the motion will be impaired.

A Colles' fracture which does not involve the articular surfaces, and which is transverse or nearly so, however much displacement there is at first, if completely reduced, will tend to remain in position, and aside from perhaps a slight broadening of the wrist, will, with few exceptions, be attended by practically no deformity nor permanent loss of function. On the other hand, an oblique fracture, though the primary displacement may be very slight, however securely the dressing may be applied after perfect reduction, there is apt to be a sufficient degree of over-riding due to muscular contraction, to produce a greater or less degree of deformity. Quite frequently the styloid process of the ulna, will be found to be fractured, and the amount of its displacement will be an index to the degree of prominence of the lower extremity of the ulna.

Fracture of the lower end of the radius extending through its carpal cavity from below and in front, upward and backward, is one of the most frequent fractures in this locality. This fracture is not only an oblique one, but by reason of the involvement of the joint itself, is almost invariably attended by serious deformity as well as material loss of function. It is very difficult to maintain the fragments in proper apposition, and the surgeon should be exceedingly careful to give a doubtful prognosis. The degree of displacement here may appear very slight, but unfortunately, this is not an index to the impairment of function that may result.

The Elbow.—Fractures about the elbow, have from time immemorial been considered likely to result unsatisfactorily. The chief reason for this lies in the extent of the articular surfaces composing this joint. The fractures most liable to produce loss of function, are those involving the articular lower extremity of the humerus. One of the most frequent here is the epiphyseal separation and splitting of the lower fragment that occurs in the young. This fracture will almost invariably result seriously, unless the most skillful surgical procedure be resorted to.

Another almost as grave a condition, is the splitting off of one of the condyles. In these cases the degree of primary displacement will, to some extent, foretell the amount of callus that will be thrown out, by reason of the probable stripping up of the periosteum. The new bone formation will occasionally be so great as to limit flexion.

Fractures of the articular extremities of the radius and ulna, are not nearly so prone to result seriously. Cases of simple transverse fractures of any of these bones, where the line of fracture does not extend into the articular surface, unless the callus resulting from the stripping of the periosteum be very extensive, will be followed by little or no impairment if reduction has been complete.

The Shoulder.—Perhaps injuries to this joint are less frequently correctly made out by the surgeon, than any of the others here mentioned. The X-Ray specialist often discovers that an impacted fracture of the surgical neck has been treated for a considerable time by massage and various forms of passive and active motion, upon the theory that the injury was merely a contusion. While it is all important to begin this line of treatment as early as possible after an injury, it is manifest what serious damage may result when the treatment is misapplied.

The most serious condition here is perhaps fracture of the anatomical neck, accompanying sub-coracoid dislocation. Rarely will it be possible to reduce the sub-luxation by the usual methods. This injury quite frequently necessitates a complete removal of the articular head and a resulting flail joint. Fractures involving the articular surfaces here are, fortunately, not very common, but the proximity of the brachial plexus renders these nerves especially liable to injury either immediately, from direct violence, or subsequently from the formation of callus.

In cases of the upper extremity of the humerus, the relation of the fragment bearing the articular surface to the other fragment, will give an idea of the degree of motion that will follow this injury, provided the nerves are not seriously involved.

Fractures of the tuberosities, though not so frequent as of the anatomical and surgical necks, are not rare. These will usually be attended by serious loss of function.

What has been said of the upper extremity of the humerus will also apply to fractures of the head and neck of the scapula. Fractures here are uncommon except a chipping off of a portion of the rim of the glenoid cavity, which may attend dislocation.

The Hip.—While the actual diagnosis of conditions involving the hip joint is necessarily the most difficult, mistakes are less often made here than in the case of the shoulder, the reason being, that a surgeon when called to attend a serious hip injury, usually assumes that he is dealing with a fracture. However, the nature of the fracture and its presence, if impacted, are points that are often determined only upon X-Ray examination. Perhaps the mistake of attempting by manipulation to ascertain the presence of fracture is productive of more injury here than elsewhere. It is far better to assume that an impacted fracture exists than to attempt to elicit crepitus by methods that have been practiced prior to the introduction of the X-Rays. Here, as elsewhere, the radiograph will determine whether the usual methods should be pursued for the treatment of fracture, or whether the patient should be allowed to use the limb as soon as the tenderness sufficiently disappears.

In cases of dislocation of the hip, it is not unusual for a portion of the rim of acetabulum to be broken off and occasionally chips may be torn away either from the upper extremity of the femur, or from the bony rim of the acetabulum. These usually indicate the rupture of the ligaments surrounding the joint, and will probably forecast a longer period of disability than when the ligaments are simply split and not torn from their insertion.

The Ankle.—Of all joints, this is the most liable to sprain. Fortunately, in comparison with the number of injuries received, fractures form only a small percentage.

This joint is provided with extensive articular surfaces, but they are so situated that fractures involving them, are not very common. Of the fractures here, the familiar Potts' with the internal malleolus involved, is perhaps the most serious. The degree of deformity, will depend upon the lateral displacement of the astragalus, while the impairment of

function will depend upon the amount of callus thrown out by the fracture of the internal malleollus and also upon the tilting of the astragalus. It is not uncommon to see a Potts' fracture which produces considerable deformity, but which does not greatly restrict the motion of the joint.

The strength of the ankle will depend largely upon the position of the astragalus with reference to the articular extremity of the tibia. If the line of support is vertical, there will be little loss of strength; on the other hand, the tilting of the astragalus, occasionally results in the line of support being directed through the outer edge of the articular extremity of the tibia. However firm the bony union, or freely movable the joint may be, such a condition can only mean a materially weakened ankle.

Fractures of the astragalus, especially those involving the trochlear surface, will usually be attended by a greater or less degree of limitation of motion. Other fractures about the ankle, such as the uncomplicated fractures of the malleoli, will impair the function in proportion to the displacement and the callous formation.

The Knee.—The fracture most apt to result in permanent disability, is that of the patella. Occasionally, especially in the young, there are transverse fractures, both supra condyloid and through the upper epiphysis of the tibia. When properly reduced, these fractures will not cause permanent impairment of motion. Fracture of the patella, however, usually leaves the joint rigid, or with its motion greatly limited.

Fractures of the condyles or tuberosities, are not common, but occasionally occur, and the disability depends upon the coaptation that can be secured and the extent of damage to the articular surface.

Rupture of the ligaments of this joint, is usually followed by a comparatively long period of disability. The presence of a rupture in a ligament, can only be determined by the chip of bone that is usually pulled off when the ligament is torn from its insertion. It is impossible to determine the presence of a rupture in the continuity of the ligaments, by X-Ray examination. Unless the effusion is very great, the ligamentum patellæ will be shown on the radiograph, and should there be a rupture, it may be plainly seen.

It is manifestly impossible to go into great detail in such a limited paper, but the writer hopes enough of the salient points have been touched upon, to give an idea of what may be foretold by a careful study of radiographs and an accurate summary of the conditions shown.

312 *East Franklin St.*

HEPATIC GUMMA SIMULATING PERIGASTRIC ABSCESS.

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The confusion which arises in differentiating intra-abdominal growths is particularly marked when it becomes necessary to differentiate the various types of growths in the epigastric region.

A growth appearing in the apex of the triangular area, formed by the ensiform cartilage and the cartilaginous borders of the ribs, immediately suggests some gastric involvement. Yet, such a conclusion may be erroneous. The chief etiological factors liable to form masses within this area are hepatic abscesses, forming in the left lobe of the liver; hydatid cysts within the same lobe of the liver substance; malignancy of this structure; gummata of the anterior wall of the left lobe; perigastric abscesses, subsequent to perforating ulcers of the lesser curvature, and sub-phrenic abscesses of the left lobe liver space.

The following case is a positive proof of liability to err in differentiating the principal tumor-forming diseases of this region:

Patient, male, white, aet. 35, laborer. Came under the observation of Dr. Prentiss on January 6th, 1910, complaining of constant pain in epigastric region; pain made worse by eating. Family history negative. Previous history: had had the usual infectious diseases of childhood, and typhoid, none of which left sequelæ; lobar pneumonia at 25 with perfect recovery.

Went to the Philippines 10 years before as a soldier, remaining six years. During this interval he suffered with an attack of amœbic dysentery, seemingly mild in character, as it yielded readily to the usual treatment. Had several attacks of malaria during that time, which promptly yielded to anti-malarial treatment. He stoutly asserted that he had never been assailed by any venereal trouble. One point worthy of note is his statement that seven years previously he had suffered from frequent attacks of jaundice; duration of attacks brief. He also stated that he had worshipped at the shrines of both Venus and Bacchus. Had lived on the West coast of Mexico for three years, while there had several severe attacks of malaria, which, however, yielded to treatment. Married three years ago. Wife has had one miscarriage and borne one healthy child, which is still living. Mother and child both free from syphilitic symptoms.

Present illness began one year before appearing for treatment. Initial symptoms were as follows: Bad taste in the mouth in the mornings, poor appetite, slight pain in the epigastric region, coming on about ten minutes after meals; pain worse after large meals; solids induced no greater irritation than liquid food. Lemonade or sour wines did not increase the pain more than other liquids; slight eructations of gas but not of fluids after meals; slight nausea after meals, occasionally accompanied by vomiting, the vomit always free from blood, as well as from food eaten the previous day. Sometimes nauseated in the early morning while the stomach was empty; tenderness in the epigastric region from the first; then a mass located in the epigastric region gradually became noticeable. This mass gradually enlarged, and finally necessitated the patient assuming a semi-sitting posture upon retiring. When walking the pain and tension were so severe as to necessitate a semi-stooped position; bowels regular; urine seemed normal; slight cough, raised a little gray expectoration; very nervous and irritable; had occasional night-sweats, which were more frequent when the indigestion was worse. All of these symptoms gradually increased. Occasionally some slight remission would occur for a few days; had gained 10 pounds in the two months previous to the date when he came under Dr. Prentiss' observation. For two weeks previous to that date his pain and other symptoms, with the exception of vomiting, had grown radically worse. Vomiting had not occurred for six months.

Physical examination: Height 5 feet 8 inches; weight 126 pounds; skin rather sallow; temperature, 100 degrees at 3:30 P. M.; pulse, 92; respiration, 28; lungs, negative; heart free from murmurs, but sounds not perfectly clear. Hæmoglobin, 100 per cent.; leucocytes, slightly increased, no differential count made; tongue slightly coated; teeth in fair condition.

Abdominal examination: Inspection showed marked prominence in the epigastric region, the mass protruding in apex of epigastric triangle; percussion over liver showed it to be enlarged; spleen, decidedly so; mass not dull to percussion, but tympanitic and painful; palpation showed rigidity of the abdominal muscles; no dorsal pain points; pain prevented deep palpation, but tumor area gave sense of fluidity; other regions of the abdomen, negative. Urinalysis gave no suggestive points. Stomach analysis was not attempted, owing to fear of probable gastric involvement, which contra-indicated use of the tube.

On consultation, the authors of this paper weighed the probabilities of the tumor being either an hepatic abscess, located in the left lobe, and inferred to be superficial,—considered by reason of the patient having lived in the tropics and his history of amœbic dysentery; or, perigastric abscess following perforation of gastric ulcer, considered from protrusion, pain and gastric symptoms. Yet both these diagnoses were questioned, owing to the absence of marked leucocytosis. Malignancy of liver or stomach not considered, on account of the patient's weight having increased during the last two months. The splenic enlargement refuted the former diagnosis, while the fair physical condition of the patient, at the end of 12 months' illness, weighed against a diag-

nosis of medullary carcinoma of the lesser curvature, this being the most frequent form of malignancy of this portion of the gastric region; while scirrhous carcinoma of the pylorus would have caused complete or nearly complete obstruction of the pylorus, accompanied by gastric dilatation and constant vomiting of food eaten the previous day. Hydatid cyst of the liver was considered, but not accepted, as patients suffering with such are free from pain and fever, unless septic changes have occurred. This type of growth allows the patient a fair sense of well being, while this patient had pain, fever, and was decidedly ill. No history of traumatism neutralized the liability of hæmatoma. Therefore, we were led to believe that the patient was suffering with either an hepatic abscess of the left lobe, superficially located, or perigastric abscess secondary to perforating gastric ulcer of the stomach. Gummata of the liver were excluded owing to absolute absence of leutic history. Patient advised to submit to operative intervention, to which he readily agreed.

Operation occurred January 7th, 1910, in Providence Hospital. Median exploratory incision made high up. At the moment of peritoneal opening the mass forced itself fairly well within the incision. In attempting to pass the hand over the growth, rather moderate adhesions necessitated seeking a line of cleavage, which when found readily allowed a thorough exploration of the mass and contiguous structures. The growth was found to be incorporated in the left lobe of the liver structure, markedly adherent to lesser curvature of stomach, but seemingly did not enter into the gastric structures. Freeing the adhesions permitted a thorough inspection of the stomach, by its elevation, and it was found to be apparently normal in every part, outside of immediate contiguous area of tumor. Other portions of the liver were inspected and palpated, but gave no further evidence of involvement other than the anterior and posterior surfaces and inferior border of the left lobe. In this area was located a reddish-grey ovoid diffuse tumor, resistant to touch. An instant diagnosis was made of a single large gumma of the liver, owing to its circumscribed nature, as well as macroscopical appearance of obliterating endarteritic vessels, together with the failure of fluid findings or bleeding occurring on resection. The surface of the growth had several protruding nodules. The perigastric adhesions and abdominal wall connections were well broken up, no attempt being made to remove the growth entire. The resected area was approximated by mattress 10-day chromosized catgut sutures; a gauze drain inserted down to the tumor site and the abdomen closed in serial interrupted fashion, except a slight space for drain site. Patient returned to bed. Upon recovery from anesthesia was placed in the Fowler position; rectal feeding adopted for the first four days, then resumed a gradually changed gastric diet, from nitrogenous liquids to semi-solids. Anti-syphilitic treatment commenced upon the sixth day, the iodides being pushed rapidly; the mercury used was a daily subcutaneous administration of 1/10 gr. of the bichloride. A rapid recovery resulted. The patient gained 30 pounds in 8 weeks.

The following camera lucida and histological report were made by Dr. F. J. Hall, of Kansas City, from the specimen submitted to him for pathological differentiation:

"A small or hickory-nut sized piece of tissue of angular outline and rim texture and yellow color is presented.

"Section shows a firm, cheesy looking spheroidal shaped central mass surrounded by a capsule of fibrous tissue. Scraping the cut surface shows the cheesy looking tissue to be firm and perfectly coherent, the center

opaque and dull in luster, the periphery distinctly translucent.

"Microscopic section shows the dull central mass to be made up of a non-staining mass in which fine hyaline fibers course, an aspect that can be best described as fibro-caseous. The peripheral zone is made up of plump fibroblasts with oval nuclei that have a disposition to project themselves for short distances into the fibro-caseous center of the necrotic area. This gives the impression to the eye that there is a palisade of cells forming a limiting fringe to the central area. This tunic of fibro-blasts is quite uniform in width and shows as a light pinkish nucleated zone that is terminated or limited toward the exterior by a zone of darkly staining round cells that are seen under high power to be lymphocytes and plasma cells. As the centers just described are left behind the tissue takes on the aspect of simple indurative inflammation with here and there foci of plasma-celled accumulations, and now and again a tubule is encountered lined with cubical epithelium, that are doubtless bile ducts. The old blood-vessels still remaining show a great degree of excentric fibrous endarteritis. There are no giant cells or tubercles to be seen. The process here presented is the syphilitic gumma of the liver."

In conclusion, the following pertinent points are presented:

1st. Denial of luetic infection on the part of patient.

2d. Absence of luetic symptoms, subjective or objective.

3d. History of repeated light attacks of jaundice.

4th. Marked gastric manifestations.

5th. Amoebic dysentery, and patient having lived in the tropics, leading to the inference of hepatic abscess.

6th. The solitary gumma involving left lobe of the liver.

7th. Rapid recovery of the patient from a confusing latent tertiary, after a primary and secondary non-manifesting luetic condition.

8th. The undoubted length of time between infection and objective manifestation.

9th. Marriage during interval, with no transmission to wife or child.

UNCINARIASIS---ESPECIALLY ITS TREATMENT.

By W. A. BRUMFIELD, M. D., Brookneal, Va.

Uncinariasis is one of the most ancient diseases known to man, for it was described by the Egyptians 3500 years ago. The ancients, however, described only the symptoms of the disease, and it was as late as 1872 before the parasite, which causes the disease, was described by Goeze, a German clergyman, who gave them the German name "Haaken wurm." A few years later the parasites were found by another German scientist who called them "uncinaria." In 1837, Dubini found one of the parasites in the body of a cadaver in Milan. That was the first of these parasites ever found in the body of a human being, and was called Ankylostoma duodenale. A few years later the parasite was found in Egypt and Brazil, and it is to the Brazilian physicians that we owe our first knowledge of the clinical importance of this disease. Bozzolo suggested the use of thymol in the treatment in 1879 in the St. Gothard tunnel epidemic. All of this work relates to the Old World hookworm. Dr. H. F. Harris, of Georgia, was the first man to discover the egg of the hookworm in this country, and he was the first Southerner to recognize the widespread prevalence and great importance of this disease. Up to about 1900 there were about thirty cases of uncinariasis diagnosed in this country, some of which came from Europe, the origin of the others being unknown. The first cases of infection with the American species of hookworm reported were: One case from Westmoreland county, Va., by Dr. Claytor; one case in Galveston, Texas, by Dr. Allen J. Smith; and several cases from Florida, by Dr. Guiteras. In a few days after Stiles notified the medical profession that hookworm disease is common in the Southern States. Dr. Harris came forward with the statement that hookworm disease is the most common infectious disease of the South. Further investigation fully con-

firmed this statement, and the parasite received the name of "Necatur Americanus,"—the American murderer.

Cases have now been reported from all the Southern States, Maryland, New York, Connecticut, Chicago and southern California. The origin of the cases reported from Connecticut is unknown. Those in New York were in soldiers who enlisted in the Southern States, and those in Chicago came chiefly from the Philippine Islands. An investigation in one hundred and thirty cotton mills and eight milling camps, showed the disease to be so common that in one in eight of the employees the microscope is unnecessary for making the diagnosis. Hookworm disease as found in the United States, has been traced to the west coast of Africa, and undoubtedly the negroes brought many cases of infection with them to this country, and the distribution of the disease now corresponds to the distribution of the people who have come in contact with the negro. For this reason, as well as on account of the warmer climate, the disease is almost confined to the Southern States, where it is now estimated that there are more than two million people with the disease, and new infections are necessarily occurring very rapidly. "Practically 80 per cent. of the negroes and 46 per cent. of the white people in the rural districts of the South, are living under sanitary conditions which are not one iota better than those described for the savage tribes of Africa. The distribution of the disease is a natural result of our large negro population, of the unsanitary habits of the people, of the character of the soil and shade and climate." (Stiles.)

Etiology.—Hookworm disease is caused by an infection by different varieties of worm of the uncinaria species. Practically the only one of these varieties which concerns us is the Uncinaria Americana, or New World hookworm. This parasite is a small round worm, about the size of an ordinary hatpin, from one-half to three-fourths of an inch long, with a contracted head and neck which are bent sharply back like a tiny fish-hook—hence the name. When male and female worms are present (as they usually are in the proportion of one male to three or four females) the females produce an enormous number of eggs. It has been estimated that at certain times each female lays about 3,000 eggs a day, and as 100 females would not be an unusual number we might have as many as 300,000 eggs deposited to develop into embryo hookworms, and new sources of possible infection daily, by a single patient. These eggs do not hatch in the body of the patient, but require the oxygen of the air, a certain amount of moisture and warmth, and protection from direct sunlight, to hatch. Given these conditions, and in from one to six days they become young or embryo hookworms. These new hookworms grow rapidly and shed their skin twice outside of the body. They now become less active and remain in this old skin until they get an opportunity to enter the body of an appropriate host, or failing to do this they die. Before this time, however, the rain and the wind may have scattered them over several square yards, and a barefooted child who passes near where they were deposited, or any person who comes in contact with these embryos is almost certain to become infected. If these parasites reach the skin of any person on any part of the body, they pass through it (generally causing considerable itching, and may be small blisters or sore) into the blood, by which they are carried through the veins, through the heart and out through the arteries into the lungs. In the lungs, they pass out of the blood vessel into the air tubes, up the wind-pipe and down the gullet, through the stomach into the bowels. It was formerly thought that infection occurred by swallowing the young worms or the eggs in polluted drinking water, or from soiled hands, and it is possible to get the worms in this way, but it so rarely occurs that it is of no practical importance. When they reach the stomach and bowels they shed their skin three more times before they are fully grown and begin to lay their eggs, and cause more or less serious symptoms according to their numbers and the

resisting power of the patient, who may have been entirely well or already the subject of a previous infection.

Predisposing causes are going bare-footed in an infected community, and any occupation which brings its followers into close relation to polluted soil; as farming, brick-making, mining, grading railroads, etc., and unsanitary disposal of the excreta from the body.

Pathology.—In considering the pathology of this disease it is necessary to divide the cases into three classes—mild, moderate and severe,—remembering at the same time, that there is no sharp line of distinction between these classes, but an imperceptible gradation from one to the other, and that a mild case may at any time become more serious from a new infection or an increased amount of damage from the parasites already present.

In the mildest cases there is no change of any kind perceptible. When the infection is slightly more severe there is a small reduction in the number of red blood cells and a reduction of the hemoglobin of the blood, with a mild catarrh of that portion of the bowels where the worms are found. The weight of the victim is reduced. In the moderate cases the destruction of the blood is considerable, the hemoglobin and number of red cells are decreased and the number of white blood cells slightly increased. There is often considerable catarrh of the stomach and bowels, the muscles are pale and friable and there is a decrease in the amount of their protoplasm, and the hair and nails are dry and brittle.

In severe and fatal cases the changes in the blood are extreme. The hemoglobin may be reduced as low as 8 per cent. and the number of red cells is very much below the normal, while the number of white cells is decidedly increased.

The catarrh of the stomach is sometimes extreme, and its walls are considerably thickened and covered with a tough mucus. Dilatation of this organ is often found. The upper portion of the small intestines is the seat of a severe catarrh which may affect, to a less extent, the other portions of the bowels. There is a large amount of mucus in the intestinal canal in which the worms are imbedded and which is often blood-stained at places. There is frequently degeneration and atrophy of the lining of the stomach and bowels. There are tiny erosions of the lining of the stomach and bowels where the worms are attached; this lining is thickened in spots and may contain small cavities in which the head of a worm or two may be found. In some cases the worms have been found embedded half their length in the wall of the bowel, and covered by a bloody mucus.

The actions from the bowels generally contain a small amount of blood which can be detected only by chemical tests.

The number of worms in fatal cases which have been examined has varied from one to 863, and 4,872 have been passed after treatment. In two fatal cases out of twenty-six, there was only one worm in each, and in six out of eighteen there were less than ten worms present. (No treatment to cause the passage of the worms had been given in these cases.) From this disagreement as to the number of the worms, and the severity of the symptoms in severe and fatal cases, it has been concluded that the damage in this disease is caused by some unknown poison generated in the intestines by the worms, and absorbed by the blood, and that some people are very much more susceptible to it than others.

The liver is frequently the seat of fatty degeneration. The changes in the spleen are said to be definite and characteristic. It is decreased in size, its capsule is wrinkled and it is softer than normal. The lymphoid and Malpighian corpuscles are reduced in size.

The kidneys are inflamed in all fatal cases. Twenty out of twenty-four cases showed traces of albumen, and eighteen of them hyaline and granular casts, before treatment.

The lungs are pale and edematous, and there is a greater or less degree of pleuritic effusion, clear and yellow in color.

Enlargement of the heart is common and dilatation of the heart more so. The heart muscle is flabby and the valves do not close

properly. The fat of the pericardium is frequently increased and there is an effusion into the pericardial cavity.

Puffiness or swelling of the lids in mild, and general dropsy in severe cases are common.

"Foot-itch" or "ground-itch" precedes uncinariasis in the great majority of cases and is really the first stage of the disease, being due to the entrance of the young hookworms through the skin. In this we have redness and itching, followed by swelling and the formation of small blisters. It may pass away with this and be well in a week or two without the patient or his parents having given it any special notice, or these blisters may become infected with other germs and produce mean sores which are very stubborn to treatment.

Symptoms.—In considering the symptoms of this disease it is again necessary to divide the cases into three classes, mild, moderate, and severe: and here again there is no line of separation between the classes, but a case which would be classed as mild to-day may rapidly grow worse and soon belong to the moderate class, or serious symptoms may suddenly develop and death promptly ensue in a mild case.

In the mildest cases there are no symptoms of the disease noticed by the patient or that can be found by the physician—the only evidence of infection being the eggs of the parasites in the stools. In some cases there is complaint of mild indigestion with an uneasy feeling or slight pain in the stomach, frequently more noticeable at night or when the stomach is empty, and a tired, dull or weak feeling when no symptoms of anemia are present. In many cases there is a reduction of a few pounds in the weight when neither patient nor physician would notice any symptoms of the disease. This reduction in weight is sometimes considerable when no other symptoms are very pronounced. One medical student in a southern medical college gained forty pounds after treatment. However, in most cases there is but little if any reduction in weight even in severe infection, and in many cases the weight is increased from the dropsy which is usually present. "It may be assumed that among healthy looking people, from one-fourth to one-half have hookworm, and the only symptom is the presence of the eggs in the stools." (Dock).

In moderate cases there is generally considerable complaint of indigestion. The patient has frequently consulted three or four physicians and tried all the patent medicines and special diets recommended by his friends, as sure cures for his complaint, without any relief, and in most cases the trouble has grown steadily worse. These symptoms may have lasted for years getting worse at times and improving more or less at other times. The bowels may be constipated or there may be a mild diarrhea; in most cases these conditions alternate, but in some the bowels are regular in their action. There is usually a decided pallor of the lips and conjunctivæ. The whites of the eyes have a pearly, glistening appearance, or they may be slightly yellow; the skin is generally of a sallow or muddy complexion; the hair loses its gloss and it and the nails become dry and brittle. In many cases there is puffiness or swelling of the lids and ankles, especially in children. The patient is weak and dull to a marked degree, and has the reputation of being lazy. He cannot plan his work as well as he could before, and owing to the weakness is either unable to do a full day's work or is extremely tired at night.

Headache, "swimming" in the head, ringing in the ears and blindness especially when straightening up after stooping, and palpitation often causes the patient to fear heart disease. Crises of fever often occur and last for days or weeks, and the flushing of the skin from this cause may mask the pallor which would otherwise be present. Pains in the limbs and joints are often present.

In children the growth is very much stunted and puberty is delayed. In some cases a patient of eighteen or twenty is not larger than a boy of ten or twelve years. In girls the periods may not come on until very late or not at all, and in women they are very irregular, scanty and frequently missing.

Farmers suffering from a moderate degree of infection make only a fraction of what they would if they were well, and day laborers receive from one-half to three-fourths the wages without the hope of promotion of a well man.

Owing to the death of the worms, without a new infection, these symptoms may gradually improve until the victim completely recovers, but more frequently the symptoms grow steadily worse and in some cases alarming symptoms develop suddenly and are quickly followed by death.

In severe cases the pallor is extreme—the lips, tongue, gums and conjunctivæ being almost white. The patient is so weak that he is totally unable to do any work, and rapid walking or walking up hill makes him so tired and short of breath that he is compelled to stop and rest. Some symptoms of dropsy are usually present. Palpitation of the heart is frequent, and a murmur can usually be heard over the apex of the heart. Pulsation of the large blood vessels of the neck is common and is often noticed by the patient. On account of damage to the kidneys the urine may be scanty or profuse, highly colored or very pale, and often contains albumen and casts.

Diagnosis.—In mild cases the diagnosis can only be made by a microscopic examination of the passages from the bowels for the eggs of the worms, and in some cases a great deal of time and patience are required to find them. In these cases the use of the centrifuge saves time and often enables us to make a positive diagnosis when, without it, the eggs could not be found.

In moderate and severe cases there is a peculiar facial expression which it is impossible to describe but when once seen is easily recognized, even at a distance, and a diagnosis may be made in passing the patient on the road or street, and when a few questions elicit the weakness and tired feeling which are always present the use of the microscope is practically unnecessary.

Prognosis.—A patient with this disease may continue to suffer more or less severely from childhood to old age; he may change his abode and live in a city with a good sewer system and recover from an infection as soon as the worms inhabiting his intestinal canal die, or he may suffer from new infections or an increased amount of damage from the worms present, and gradually or suddenly develop serious symptoms and die without any complications—i. e., from sickness caused by these parasites alone. In some cases the poison produced by the worms causes such extensive destruction of the blood that it results in death, and in others it causes Bright's disease or heart disease that ends the same way, unless proper treatment is promptly instituted, and even then there is danger that the damage, especially in case of kidney disease, cannot be repaired. In two of my twenty-five cases there are severe kidney complications, but it is yet too early to say what the effect of treatment will have on the condition of the kidneys. In both of these cases the eggs of the worms were hard to find with the microscope.

In most cases of hookworm disease the patient keeps up and about until he contracts some other serious disease such as typhoid fever, pneumonia, dysentery, or, in children especially, measles, whooping-cough, scarlet fever or any of the diseases of childhood, when on account of the weakened constitution from the parasites, he dies, and it is never known that he had hookworm disease.

On account of the weakness and shortness of breath, produced by this disease consumption has frequently been feared, and when money can be had the patient is sent to various health resorts, springs, etc., and horseback and other open air exercises have been tried. No doubt one of its victims is especially prone to contract consumption and has a very poor chance to recover from it when he does.

It is probably largely on account of hookworm disease that negroes so readily succumb to any serious sickness, yet the negro is supposed to be less susceptible to the poison generated by these parasites than are the whites.

From a consideration of these facts, we see how important it is for parents in the South

to bring their children, and to come themselves to their family physician whenever, for any reason, the health and strength are impaired; and how still more important it is for every Southern physician to be ever a sentinel on the lookout for this Necatur Americana—American murderer. It is remarkable how little many of the victims complain in any way, even when these serious and obvious symptoms are present, and how often both they and their friends refuse to admit that any illness is present. Some of them are insulted when the real cause of the trouble is suggested.

Treatment.—Prophylactic.—The treatment of this disease by hygienic measures is of the very greatest importance to the South. The wearing of shoes and otherwise avoiding contact with polluted soil affords a certain degree of protection, but it has been proven that the embryos of this parasite can penetrate shoes, which is just what we would expect when we consider that shoe-leather is only skin rendered more porous by the process of tanning, and farmers and some other classes of laborers cannot avoid coming in contact with the soil. Real prevention must consist in the prevention of soil pollution. The people of the South must be taught the great law of biology that the excretion of a living organism is poison to that organism, and that for the preservation of our health we must construct sanitary privies and use them. The length of life of the hookworm is probably not more than four or five years, and, since it does not multiply in the host, if we could prevent an infection from occurring for this length of time the disease would be completely eradicated without a dose of medicine having been given to cure it; and so far as the Commonwealth is concerned this is far more desirable than the cure of the two or three millions of individuals now infected.

Curative.—Hookworm disease is one of the five or six diseases that medical science has taught us how to cure with drugs, and for which we have a sure and safe specific. Thymol *properly administered* gives all the results that can be desired in almost every case. In its administration, however, we must remember that we are treating the parasite and not the patient, and that in order to get the desired results the drug must come in actual contact with the worms. For this reason it is necessary to limit the quantity of food for a while and administer a dose of salts before commencing the specific treatment. My rule is to allow an ordinary breakfast, a light dinner without any articles (such as most vegetables) that leave a considerable residue after digestion, and no supper; and a dose of salts at bedtime. It depends, of course, on the age of the patient how much salts I give, but I always aim to give enough to thoroughly empty the bowels of all undigested food products and mucus. The next morning at 6, I give half the dose of thymol and at 8, the other half, and at 10 another dose of salts to cause the expulsion of the worms, which usually begins before 12, and is almost complete by 5 P. M., the same day. No breakfast is allowed on the day that the thymol is taken and no grease, alcohol, patent medicine nor milk is allowed that day. As many people are in the habit of taking a toddy when they feel weak and many others take their favorite patent medicine for the same reason, and all have been taught that milk is a wholesome and light article of diet I always specifically and emphatically forbid all of these.

At noon on the day the thymol is administered I allow some food, and usually specify a boiled or poached egg, a baked or boiled potato, boiled rice with baker's bread and without any butter or milk. The dose of thymol is as follows:

Under 5 years old.....	7½ grs.
From 5-10 years old.....	15 grs.
From 10-15 years old.....	20-30 grs.
From 15-20 years old.....	40-50 grs.
From 20-60 years old.....	60 grs.
Over 60 years old	45 grs.

The apparent age and general condition of the patient should be taken into account in deciding on the size of the dose, and in cases where the disease has retarded the growth of the patient so that he appears several years

younger than he is, and in cases of alarming weakness these quantities should be reduced accordingly.

With these doses there is sometimes considerable burning in the stomach with decided thirst and rarely nausea and vomiting, but these symptoms last only an hour or so, are not dangerous, and the patient who suffers from them usually gets excellent results from the treatment. I always advise my patients to remain in bed until noon on the day of treatment but most of them do not heed my advice and I do not think it makes any difference.

After the thymol is taken I have my patients use a chamber and not empty it until late afternoon when water is added and the contents strained through a piece of gauze used to cover tobacco plant-beds (which I find in every home) and a search made for the worms. Another microscopic examination is made and the treatment repeated if necessary, in a week.

When thymol is finely powdered and put into capsules the particles frequently adhere and form into solid lumps which pass through the bowels and may be recovered in the stools on straining in the search for the worms. Such lumps of thymol can come in contact with few if any worms and do but little if any good. Keratin coated compressed tablets of thymol have been put on the market by some of the reliable manufacturers of drugs. I have used them in three cases when I could get the thymol in no other form and only mention them to condemn them. It is claimed for them that they will not dissolve in the stomach and this claim is probably true: but since in some cases the worms are found in the stomach it is a point against them. Again these parasites are found in the upper part of the jejunum and the duodenum where peristalsis is normally comparatively rapid and the tablets have probably passed most of them before the keratin coating is dissolved: and, finally, the compression of the thymol forms it into such a solid mass that no disintegration takes place and the tablets may be recovered in the stools in the same shape and size as before administration except for the absence of the coating. This is what happened in my three cases and not a single worm was expelled in any one of them.

When the thymol is finely powdered and triturated with an equal quantity of milk sugar and administered in a capsule the capsule and milk sugar are dissolved in the stomach, the thymol is thoroughly mixed with the watery contents of the stomach and passes out through the bowels as an emulsion coming into contact with, and paralyzing or killing every worm that is not protected by the mucus produced by the catarrhal inflammation which the presence of the worms always produces to a greater or less extent. If the degree of inflammation is mild and the mucus is swept away by the preliminary dose of salts so that the thymol may reach every worm one treatment is all that is necessary to produce a cure. In long standing cases and in heavily infected cases where there is a large amount of mucus, and in cases where the directions in regard to diet are not followed, or in which the preliminary dose of salts has failed to wash the mucus away the treatment will have to be repeated once or, in a few cases, several times before all the parasites are removed.

In cases in which the anemia and weakness are alarming it is proper to administer strychnin and iron and prescribe rest for a short while after the specific treatment has been given; and the hemoglobin percentage may be raised to the normal more promptly by the administration of iron, preferably in the form of Blaud's pills, in all cases. But as there is such a strong tendency on the part of the public to belittle hookworm disease in every way and to ascribe the wonderful improvement which follows its treatment to the prolonged course of tonics, and as the patient gets well almost as promptly and just as surely without it, I make it a rule to remove the parasites and leave the rest to nature.

Dr. T. J. Hughes,

Formerly of Saltville, Va., has returned from a year's post-graduate work abroad, and is located in Roanoke, Va.

PUERPERAL ECLAMPSIA.*

By B. G. PRESTRIDGE, M. D., Alvarado, Texas.

In an experience of twenty-seven years, in which I have attended approximately 1,500 cases of labor, it has been my lot to witness twenty-four cases of puerperal eclampsia.

Of this number fifteen cases occurred in my own practice, making an average of one case in every hundred. I have consulted a number of authorities, and the concensus of opinion is that eclampsia occurs once in from 300 to 500 cases of labor.

To show you that there is nothing in the locality or in the atmosphere where my cases have occurred, I will say that two eminent colleagues, who have been practicing in my town the same number of years as myself, have only seen three or four cases each.

Out of the above fifteen cases I am proud to say that there were no fatalities. You may think this rather a remarkable statement, as most authorities give the mortality at from twenty-five to thirty-five per cent.

Of the nine other cases seen by me in consultation with other physicians there were two deaths. In my experience about two-thirds of my cases have occurred in primipara. Of the nine cases seen in consultation five were primipara. Of the twenty-four cases there were three cases of post partum eclampsia. Of the fifteen cases convulsions occurred at a second labor. Of the whole number of cases there was only one out of wedlock.

I well remember the third case of labor I ever attended; it was a typical case of puerperal eclampsia. The father, mother, child and young doctor all made a happy recovery.

For the benefit of the young doctors present, I will here relate an incident which occurred at Vanderbilt University in 1881. Dr. Briggs was performing a rather bloody operation, removing a large tumor from a negro's neck. The air being heavily charged with ether, it caught fire from an alcohol lamp and enveloped the negro in a sheet of flame. He immediately regained consciousness and made a dive to get out of the amphitheater. This caused quite a panic among the students, some fainted and some left the hall. After the negro had been brought back, and the operation finished, Dr. Briggs gave the boys quite a lecture about becoming excited and losing their presence of mind. Among other things he said: "Gentlemen don't allow yourselves to become excited. If you should go to the bedsire of a patient and see the devil sitting on the bed-post, just say 'Good morning, sir,' I was expecting to see you.'"

I always remember this incident when I come in contact with a case of puerperal eclampsia.

The true cause of eclampsia like the fact that few primipara have after pains is shrouded in mystery and is something yet to be found out.

Most authorities claim eclampsia to be the result of toxemia. Toxic material is supposed to be absorbed from the mother's blood, and to this is added the metabolism of the fœtal tissues. We usually find the secretions as well as the excretions locked up.

The premonitory symptoms of eclampsia are frontal headache, disturbance of vision and sometimes gastric pain. The pulse is usually rapid with high arterial tension.

The first indication in treatment is to control the convulsions. I try to meet this by first giving chloroform by inhalation, and then a hypodermic of morphia for their immediate effects.

The remedy on which I rely most in the treatment is Veratrum Viride. I give ten to fifteen drops of Norwood's Tincture hypodermatically and repeat as often as necessary to keep the pulse rate at or below sixty per minute. If my patient is full-blooded I do not hesitate to take away a reasonable amount of blood. As an antispasmodic and to promote dilatation of the os, I sometimes give thirty or forty grains of chloral by the rectum. The next thing to do, is to find out the condition of the os, and proceed as soon as possible, with due regard to safety to dilate the os and deliver the fœtus. I never get in a hurry and never attempt to apply forceps until the os is thoroughly dilated.

*Read before the Texas State Medical Association, Dallas, Texas, May 11, 1910.

I invariably clean out the intestinal canal, usually by giving ten grains of calomel followed by a brisk saline cathartic. It is good practice to stimulate the kidneys by giving diuretics and flush the emunctories by giving copious draughts of water.

I have used glonoin with decided results as a diuretic and to reduce arterial tension. It is sometimes very necessary to catheterize the patient. I never forget the importance of an enema: first, to cleanse the rectum and lower bowels; second, a normal saline solution as a stimulant, if needed. Sometimes a collapse follows high arterial tension when it might become necessary to use strychnia and whiskey as stimulants.

If other remedies fail me I do not think I would hesitate to use small doses of apomorphia for its anti-spasmodic effect and also to relax a rigid os.

As to diet, I think it well to eliminate all nitrogenous foods, and give plenty of milk till the patient is out of danger.

THE ALCOHOL QUESTION.

By GEORGE L. SERVOSS, M. D., Fairview, Nevada.

The utility of alcohol, as a remedial agent, has been discussed. both pro and con, for a number of years. There was a time when it was thought that alcohol was an absolute necessity in the treatment of all febrile conditions, particularly in pneumonia and typhoid fever, and that the doctor who did not employ it in such cases was guilty of criminal negligence. Later, a reaction against this agent took place, as it was found that there were other agents, producing as good results, and not possessing the undesirable actions of alcohol. Regardless of this, there are doctors today, who depend very largely upon alcohol as an internal agent, but it has been observed that these men do not obtain as good results as do those who use other stimulants.

The writer has given considerable attention to the use of alcohol in the treatment of pneumonia, both in his own and in the work of his confreres, and it has been his finding that there was greater mortality among those who received alcohol than those who did not, and that when recovery followed in the former instances, convalescence was slow and that the patients did not show as good recuperative powers, as did those who received no alcohol. Because of such findings, the writer has not employed a drop of alcohol, for a period reaching over several years, in the treatment of this disease, even though the patients might have been in the habit of taking more or less alcohol when well. He has found that other remedies reacted better without alcohol than with it, and that for tonic effect, strychnine was far preferable. In the majority of such cases, there has been less delirium when alcohol has not been employed and the toxic symptoms have not been as pronounced; in fact, in the majority of cases they have been entirely absent. With the employment of strychnine, the vitality of the patient has been kept within a reasonable distance of par at all times, in consequence of which, the antagonism against the specific invasion has been stronger and the reaction to remedies for the correction of specific symptoms has been greater. Consequently, the writer believes that alcohol is not a necessity, at any time, in the treatment of pneumonia.

It is a well-known and recognized fact, that alcohol, while primarily a stimulant, in all instances, in its secondary action, lowers vitality: consequently there is no instance wherein it is indicated. In times past, we have seen alcohol employed in shock, but it has been found that strychnine is a far better agent. With strychnine, we have not only a primary stimulating effect, but a prolonged tonic effect as well, and once established, the effect is unvarying. Alcohol has been employed, time out of mind, as a remedy in different varieties of collapse, but glonoin and atropine are preferable. In heart failure, glonoin is really quicker than alcohol in action, and when strychnine is employed in conjunction, the effect is sustained, and without any interference with the functions of any of the organs, other than to possibly increase them. Alcohol will relieve spasm, but so will

glonoin, hyoscyamin, cicutin and other agents, and without the untoward effects of the former. In collapse, with cold clammy skin, atropine is preferable in every way to alcohol, as it relieves the internal congestion, brings the blood to the surface and equalizes the circulation, and with the employment of strychnine in conjunction this equalization is sustained.

It has been found that alcohol, if employed for any considerable length of time, interferes with the functions of every organ of the body, and by reason of such interference, other symptoms than those primarily under observation, are liable to appear. Alcohol, by inhibiting the functional activity of the liver, interferes with the flow of bile and there is liable to follow a condition of stasis of bowel action, with the attendant formation and absorption of toxins, with general autotoxemia and increase of the specific symptoms under consideration. Such reaction does not follow in the wake of the use of strychnine, iron, quinine, or other tonics of this class. They, by bringing about a healthy metamorphosis, tend to increase, rather than decrease, the normal functions.

Alcohol, in one form or another, has been, and is, employed as a stomachic and appetizer by a very goodly portion of the human race and it is not an uncommon thing to see both men and women drinking "cock tails" and other alcoholic liquors, prior to meals, as well as with and between courses. In the cocktail, bitters are combined with the alcohol and these by themselves increase the flow of the digestive fluids and promote the appetite, and many of them, taken alone, would be as effective as when combined with alcohol. The alcohol of these beverages inhibits the functional activity of the entire digestive tract, and not infrequently do we find numerous symptoms arising from the use of alcoholic liquors in conjunction with foods. The morning headache does not, as a rule, follow a meal taken without alcoholic liquors, while it is almost invariable when taken with them. If the appetite needs stimulating it will be found that simple bitters, like quassin, are superior to any of the alcoholic liquors. This bitter in particular, has a selective action upon the gastric functions and increases, rather than retards them. When the anorexia is due to lack of general tone, strychnine, by its action, both generally and locally, brings about a normal functional activity with a return of the appetite.

Alcohol, even when taken in diluted form, as in whiskey, is an irritant to the gastric mucous membrane and it may be followed by either acute or chronic gastritis. The writer bears in mind a case which came under his observation, in which a very severe, acute gastritis followed the taking of a single drink of whiskey on an empty stomach. The patient in this instance was a man who took two or three drinks a day, but seldom before breakfast. One morning, while dressing, he saw a small amount of 100-proof whiskey remaining in a bottle on his side-board and without further thought drank the whole amount. Although this had no intoxicating effect, within half an hour he began experiencing severe pains and for forty-eight hours was unable to retain anything upon his stomach, and for several days thereafter there was more or less distress following meals. It is a well-known fact that alcohol causes rapid dehydration of all aqueous fluids and this probably accounts for its irritating action upon the stomach to a very considerable extent. Not only do we find gastric disturbances following in cases of this sort, but they are very prevalent among the chronic drinkers, and it is the rare exception to find a patient of the latter class who has not stomach trouble to some degree.

Not only do we find the stomach irritated, but the liver is overworked. When alcohol is taken the liver immediately endeavors to throw off this substance and the elimination of other excretory material is interfered with because of this, and toxic intoxication, other than alcoholic, is liable to follow. The kidneys are likewise a point of alcoholic attack, and the prolonged use of this intoxicant is followed by either acute or chronic inflammation of these organs, as well as of the liver.

In the preparation of specimens for micro-

scopical investigation, alcohol is employed as a hardening agent, and what is true of the results obtained in this way in the laboratory is true likewise in the human economy. In chronic alcoholics we find hardening of the blood vessels, the brain, spinal cord and nerves, with loss of normal function. Alcohol likewise predisposes to fatty degeneration of certain muscular tissues.

While this is a subject that could be discussed at much greater length, we believe that calling attention to the few salient points cited above, is sufficient to show that alcohol is an unnecessary factor, as an internal remedy, in the treatment of disease and that we have other agents at hand, which give better results and without any untoward effects.

Alcohol has been employed as a circulatory stimulant, but as indicated it has been found that digitalin, strophanthin, caffeine, strychnine, sparteine, convallamarin, cactin and atropine are superior in every way; that among the cerebral excitants better effects are obtained from quinine, cannabin, atropine, and in some instances morphine and codeine; that strychnine, brucine, hydrastine and caffeine are far preferable as spinal cord excitants; quassin, strychnine, hydrastine and hydrastinine, as stomachics, have all the good effects of alcohol, without its bad ones; and as a general tonic alcohol is superceded by strychnine, brucine, iron, quinine and many of the other drug tonics.

From the foregoing, it will be seen that every indication for alcohol may be met with a better agent, and one which will not be followed by either interference with one or more functions, and without the toxic effect of alcohol. Consequently there can be no valid reason for the continued use of alcohol as an agent for internal medication.

ELECTRO-THERAPY FOR ENLARGED PROSTATE.

By W. T. JONES, M. D. Crozet, Va.

Electricity, as well as medicine and surgery, has a place in relieving and curing pathological conditions. It is not an invader, seeking conquests of foreign territory to which it has no righteous claim, but gradually, quietly and peacefully takes possession of an inheritance, bequeathed by unerring justice, and established by the ethics of scientific success.

Until about the end of the eighteenth century, surgery was crude and unsatisfactory in its results. It, as well as the practice of medicine, brought honors and fame to a few men whose achievements exceeded in good results the practice of their fellows. But modern surgery is as far superior to that of less than fifty years ago as John Hunter was superior in thought and skill to the ordinary physician of his day and generation. The abdomen, which the surgeon of the Civil War feared to enter because death was almost a certain result, is now a field for successful surgery in every modern hospital; and in homes in the rural districts where the country doctor has, in many instances, become skilled in both medicine and surgery.

Electricity has claimed a place in therapeutics only in the last decade. That subtile force which has astonished and continues to astonish the world by its marvelous performances under the skillful and intelligent manipulations of men of inventive genius, now claims a place in the domain of treating pathological conditions. It does not propose to usurp any part of the fields of surgery and medicine, but approaches, without eclat or banners, that which is rightfully its own; and by scientific application, establishes its claim to recognition by the exhibition of wonderful results. Electrotherapy is not a fake, but when adopted by men who are intelligent and brave, has been rescued from quackery, and established upon a scientific basis, and is fast becoming equal in achievements to the most successful use of the articles of Materia Medica or Surgery.

I have been led to these reflections by observations of the effects of electro-therapeutics on various pathological conditions, and also by my own personal experience of cure, obtained by the use of this comparatively new agency as applied to the ills of humanity.

For a number of years, I have been conscious

of a gradual enlargement of the prostate gland, and had endured much inconvenience, and several spells of congestion with hematuria, attended by the usual painful symptoms. Many times I have thought of submission to the surgeon's knife, but shuddered, knowing that the removal of the prostate often means the loss of life; and when death does not result, a urinary fistula is left in perhaps seventy-five per cent. of cases to plague the patient for the remainder of life which, fortunately, is not usually long.

A few weeks ago, my prostate became congested, and was sore and painful, and gave rise to a hematuria which rapidly depleted strength and energy. Having heard of the electro-therapeutic plant of Dr. J. C. Walton, Richmond, I went to investigate, and saw enough to convince me that in my case electricity promised better results than surgery. I placed myself under treatment, using the Morton wave-current: and at the end of four weeks the prostate was reduced to its normal size, and all the disagreeable concomitants of enlargement disappeared.

I do not decry the value of medicine and surgery, but would place electro-therapy in the treatment of such conditions as I have spoken of in a rank equal to either, because it is less painful than surgery and it will achieve equal, if not greater successes, more satisfactorily.

Correspondence.

Treatment of Habitues of Morphine, etc.

Editor Virginia Medical Semi-Monthly:

The findings of the Opium Congress at Shanghai, in China, have opened up, not only a new field of research in which pathologists will soon be busy, but are proclaiming the redemption of 85 per cent. of all drug habitues; and thus filling the hearts of this unfortunate class—among whom are some of the brightest minds among us—with a newborn hope. They all dread the withdrawal of the drug, and are surprised at the ease with which it is effected.

I have, in the last year or so, treated a number of patients referred to me by their friends with most encouraging success. Among these, I have treated two eminent physicians—both run down in health. One case was complicated by gastric troubles, with marked inertia and wretchedness, and bordered on the thin edge of suicide. The other suffered from chronic muscular rheumatism and gastric disturbances. The one, on leaving me, said, "I am all right"; and the other writes me: "You need have no further fears about me."

I recently saw a case in this city, addicted to morphine, who was only 42 years of age, but who looked as if he were 70, and too weak to walk, unassisted, across his room, who has wonderfully improved as to his habit. I have also had under treatment a lawyer, only 28 years of age, who was apparently a mental and physical wreck, and seemed passed all redemption, as he was taking forty-five grains of morphine a day. This patient, still under treatment, is wonderfully improved, and I believe will be cured.

This new treatment, compared to which all past treatments of morphine cases seem but experimental failures, has at one bound achieved such victories and won such success as to amaze and confound us all. The craving is destroyed; the chains that held the victim in slavery are snapped asunder, the serpent crushed and the victim freed. A recent letter from Professor Lambert, of Cornell University, New York City, informs me that he is saving 85 per cent. of all cases—taking them as they come, without selection.

There is no antidote for either alcohol or morphine—all the claims of all the "fake cures" and sanatoriums to the contrary, notwithstanding. Elimination is the key to the situation, and upon this ground the victory is won—supporting the strength of the patients in the meantime, and reducing their sufferings to the minimum.

I have no secret treatment—no private formula. This new treatment was brought out before the Opium Congress at Shanghai, in all its details, and adopted and faithfully carried out at Bellevue Hospital, New York City, by Professor Lambert, of Cornell University, and published by him in the *Journal of the American Medical Association* during 1909. Dr. Lambert is a vice-president of this association. This is the identical treatment I use, and so far without a definite failure—although

one or two of the cases seemed almost hopeless when they came under treatment.

I believe that the "craving" for the drug can be destroyed in two weeks in 85 per cent. of cases; and afterwards the general health of the patients can be built up gradually, but surely, to their former standard. I base this belief upon actual practice during the past year.

J. W. Williams, M. D.
2214 *East Broad Street, Richmond, Va.*
May 15, 1910.

Book Notices.

Modern Surgery—General and Operative. By JOHN CHALMERS DA COSTA, M. D., Professor of Surgery and of Clinical Surgery, Jefferson Medical College, etc. Sixth edition. Thoroughly revised and enlarged. With 966 illustrations, some in colors. Philadelphia and London. W. B. Saunders Co. 1910. 8vo. 1,502 pages. Cloth, $5.50 net; half Morocco, $7 net.

The strides of surgery, even in the last three or four years—when the fifth edition of this work was published—are shown by the partial enumeration of advances given in the Preface of this Sixth Edition. Some of these yet need the test of experience and observation to prove their value or worthlessness. After many pages of the former edition have been either entirely displaced or abridged, the additions in this revision, so as to keep it up to date as a text-book on *Modern* Surgery, have demanded many pages. As the work is now published, however, it is one of the very best one volume books on surgery extant—either for the surgeon or student. The text illustrates the author's fine powers of terse description, and where needed, the drawings fill in the gaps. The fullness of the volume is shown by reference to 35 pages of triple column small type index. No general surgeon will go wrong in providing himself with this work which is published at a remarkably small net price.

Diseases of Stomach and Intestines. By ROBERT COLEMAN KEMP, M. D., Professor of Gastro-Intestinal Diseases, New York School of Clinical Medicine, etc. With 280 illustrations, some in colors. Philadelphia and London. W. B. Saunders Co. 1910. 8vo. 766 pages. Cloth, $6; half Morocco, $7.50 net.

The very practical character of this work in what relates to anatomy, physiology, diagnosis and treatment of diseases of the stomach and intestines will make for it a very great demand. Details of diagnoses—both direct and differential—are plainly given. Methods of examination are simply stated; so that the home physician, as a rule, can both diagnose and lay down the best lines of treatment—especially with the help of a trained nurse. Even in such diseases as appendicitis, a good line of treatment is given until the surgeon comes. We look upon this as about the best of modern books on the subjects treated, and should be carefully read, especially by physicians, who will derive from its pages many points of usefulness for the bedside.

Anatomy and Physiology for Nurses. By LE ROY LEWIS, M. D., Lecturer on Anatomy and Physiology for Nurses, Lewis Hospital, Bay City, Mich. Second edition. Revised and enlarged. Philadelphia and London. W. B. Saunders Co. 1910. 12mo. 344 pages. Cloth, $1.75 net.

This book well serves the purposes for which it was intended—to give the essential points of anatomy and physiology for nurses. Much of it is elementary, it is true, but sufficient is stated for the student nurse to build upon. In the former edition, there was a chapter on the female organs of generation; in this edition, a chapter on the male organs of generation has been added. The illustrations are well suited to the purposes of the volume.

Pathology of the Living and Other Essays. By B. G. A. MOYNIHAN, M. S., F. R. C. S., Leeds. Philadelphia and London. W. B. Saunders Co. 1910. 12mo. 260 pages. Cloth. $2, net.

This is a collection of a number of essays by the distinguished author. Besides one on the chief title of the book, is one on Inaugural Symptoms; another on Gastro-Enterostomy and After; another on Early Diagnosis and Treatment of Cancer of the Stomach; another on Surgery of the Common Bile Duct; another on the Operative Treatment of Obstructive Jaundice and the Proper Selection of Cases; another on Violation of Courvoisier's Law; another on Mimicry of Malignant Disease in the Large Intestine, and the last on Surgical Treatment of Cancer of the Sigmoid Flexure and Rectum, with Especial Reference to the Principles to be Observed.

Editorial.

War on the House Fly.

Notwithstanding screened doors and windows, the pestiferous house fly is a daily nuisance—at the table, the desk, or even when taking naps in the daytime. The unfortunate bald-headed man, in his business office, or else enjoying himself otherwise in the fashionable club-room, in reading the periodicals of the day, unless he keeps his head covered, is an object of pitiable amusement to those around him as he continuously attempts to strike off the pestiferous fly. But it is at meal times for the well that these pests are specially troublesome; and more especially in the sick-room that they are most aggravating. Take whatever precautions one chooses with reference to cleanliness of surroundings—of dishes, plates, spoons, etc.—the fly is there to annoy the patient and nurse. Improved watercloset arrangements in the cities have, in great measure, driven flies from these places. Of course, however, in the country, such conveniences cannot well be had, and naturally, flies there become especially known as infection bearers.

To get rid of such pests has long been a study. Electric fans, when available, and endurable by the parties affected, are serviceable in keeping them away from the exposed portions of the body. The ordinary "fly papers," as sold in drug stores and other places are good exterminators, but are sticky and one has to be careful where he puts the sheets. The ordinary cylindrical "fly trap," with its roller saturated in some syrupy fluid is advocated by many. From the large number of remedies mentioned, we append the following: A solution of bichlorate of potash in two ounces of water, with a little sugar, placed in shallow dishes and distributed about the house, is considered a cheap and reliable exterminator, not dangerous to human life; or, to quickly clear a room where there are many flies, burn pyrethrum powder, which stupefies the flies so that they may be swept up and burned. Recently Dr. Henry Tete, of New Orleans, La., has also suggested through *The Item*, of his city, the following method of extermination of the house fly, which is cleanly and effectual. We copy the letter in full:

To the Editor of "The Item":

"I desire to give to the public through this means, a positive, safe and cheap, remedy for the pest of flies: Procure a dimes worth of *formalin* (which is simply a forty per cent. solution of formaldehyde) from any druggist. Place two teaspoonfuls of this in a soup plate of water. Place on a shelf or the mantel or other convenient place. In a few hours hundreds of dead flies will be found near the dish, on the floor and about the room. Renew solution every other day.

"A fly drinks at least twice every twenty four hours, especially in the early afternoon and morning. Every fly in reach will go to this plate to drink. The result is magical. Some drop dead in the dish; some fly a few feet and drop; others act as if intoxicated a few seconds and then stiffen out. It is remarkable that such a minute amount should prove toxic to the fly. Cats and dogs will not drink enough of it to hurt themselves. However, it is better to place the plate away from them.

"Formalin, taken in very small amounts is not toxic [to human beings] (Hare), and the flies, if eaten by other animals are not toxic. One or more dishes of the solution should be placed in each room.

"I shall be very glad to hear of results, and will be glad to give any further advice to any one. Very truly,

"Dr. Henry Tete."

Etiology of Dementia Precox.

Since Kraepelin created this syndrome and believed that its cause was an autogenous toxine, a school has arisen which believes that the symptoms of catatonia, hebephrenia, and paranoia dementia are not only bent and coloured by the individual's psychic make up and experiences, but that the whole disease is psychogenous. They hold this belief in spite of the failure of every effort to arrest even the psychological symptoms by psychotherapy.

They reject Kraepelin's hypothesis of a toxic origin largely on account of complete failure to demonstrate any toxine after most careful and prolonged researches of which the exhaustive effort of Folin is the best known.

To Dr. Tom. A. Williams, Washington, D. C., this seems a totally untenable position; for Folin's investigation had to do with the analysis of the physiological contents of the urine, which toxins might in no way affect.

When we consider our almost complete inability to chemically detect so gross a perturbation as that which causes the symptoms of

hyper or hypothyroidism, acromegaly or Addison's disease, and that so toxic a substance as digitalin cannot be detected in the blood as a chemical substance, it is utterly unjustifiable to negate the possibility, at least, that the dementia precox syndrome is a result of toxic factors.

It would therefore be very unwise to abandon the investigation of the metabolic disturbances in this disease; while at the same time carrying on the study of the psychological mechanism, which plays so large a part in its symptomatology.

To illustrate, intoxication with cocaine or alcohol may be studied. In each of these, the study of the psychoses induced affords valuable data to psychopathology; but it does not exclude either the fact that the whole syndrome is toxigenous nor are we asked to forego our researches into the chemical-pathological mechanism of the intoxicated body. What applies to a known intoxicant may very well be utilized in the study of a disease which many psychiatrists regard as belonging even psychologically to the type of toxic psychoses; for in dementia precox one finds in less obvious shape the characters whih may be shortly summed up as onirical (dream-like) delirium. For instance, automatism, hallucinations, impulsive acts, apparently incongruous relations of thought, inappropriate emotionalism suspiciousness, incongruous laughter and tears, all appear on the surface in both admittedly toxic psychoses and in dementia precox.

Hospital Appointments

For graduates in medicine at close of recent session of the University of Virginia, were as follows:

Kansas City Hospital, Kansas City, Mo.—Dr. Albert Van Devanter Braden, Pæonian Springs.

Lakeside Hospital, Cleveland, O.—Dr. Arthur Shade Jones, Bluefield, W. Va.

Waltham Hospital, Waltham, Mass.—Drs. Rockwell Emerson Smith, Campanis, Brazil, S. A.; Robert Emmett Wilson, Charlottesville.

Quarantine Hospital, Swinebourne Island, N. Y.—Dr. William Alex. Murphy, Morgantown, N. C.

Bellevue Hospital, New York, N. Y.—Drs. Mark Roy Faville, Dolgeville, N. Y.; Gordon Livingston Todd, Mt. Solon.

Post-Graduate Hospital, New York, N. Y.—Dr. Richard Vipon Taylor, Jr., Mobile, Ala.

Red Cross Hospital, New York, N. Y.—Dr. Henry Wirt Jackson, Jr., Keswick.

Polyclinic Hospital, Philadelphia, Pa.—Drs. Lewis Booker, University; Archibald Douglas McMurdo, Charlottesville.

Union Protestant Infirmary, Baltimore, Md.—Dr. Cecil Dabney, Charlottesville.

Providence Hospital, Washington, D. C.—Dr. Claude Carlisle Caylor, Washington, D. C.

James Walker Memorial Hospital, Wilmington, N. C.—Drs. Thomas Edmond Hughes, Laurel Mills; George Hermann Lang, Savannah, Ga.

U. S. Army Medical School, Washington, D. C.—Dr. Adna Godfrey Wilde, Vicksburg, Miss.

King's Daughters' Hospital, Staunton, Va.—Dr. Clinton Franklin Costenbader, Mauch Chunk, Pa.

St. Vincent's Hospital, Norfolk.—Dr. Garland Eggleston Faulkner, Jr., South Boston.

Protestant Hospital, Norfolk.—Drs. William Henry Baughman, Richmond; William Dandridge Haden, Charlottesville.

University of Virginia Hospital.—Drs. John Minor Blackford, Alexandria; Alfred Power Jones, Fredericksburg; John Henry Neff, Jr., Harrisonburg; Ernest Alex. Purdum, Providence Forge.

The Shenandoah County Medical Society

Held its annual meeting in Woodstock, Va., June the fifteenth, with a good attendance. In addition to interesting papers by several of the members, two very instructive talks were given by invited guests.—Dr. Harvey W. Wiley, Government Chemist and Food Expert, and Dr. Edwin M. Hasbrouck, a well-known surgeon, both of Washington, D. C. The question of building a county hospital was discussed, and a committee appointed to look into the matter. The election of officers for the ensuing year, resulted as follows: President, Dr. D. D. Carter, Woodstock; vice-presidents, Drs. M. R.

Bruin, Strasburg, and D. L. Shaver, Maurertown; secretary-treasurer, Dr. Wm. F. Driver, New Market.

Straw Itch.

As a result of studies made by Drs. Goldberger and Schamberg, Passed Assistant Surgeons, United States Public Health and Marine Hospital Service, an interesting article appears in *Public Health Reports* for June 10, on the old but ever-new disease of *straw itch*. Outbreaks of what is supposed to be this disease have been reported in New Jersy, Maryland, Pennsylvania, Ohio and Indiana. Dr. Goldberger's article treats of the symptoms, diagnosis, treatment, prevention, etc.

Henry Phipps Institute for the Study, Prevention and Treatment of Tuberculosis.

The University of Pennsylvania has been selected as the institution to carry on the work of the Phipps Institute, until the hospital is erected on ground which has already been acquired for the purpose in Philadelphia. The work in the new institute will be divided into three general departments—laboratory, sociological and clinical—each under the supervision of a director.

The Lynchburg, Virginia, Medical Society

Held its June meeting at the Elks Club, with Dr. George J. Tompkins, the president, in the chair. A most interesting paper was read by Dr. H. Stuart MacLean, of Richmond, Va., on "Acute Cerebral Compression," with presentation of case. After a general and profitable discussion of this paper, and election of several new members, a "smoker" was enjoyed by those present.

The American Medical College of St. Louis, Mo.,

Which has formerly belonged to the eclectic school, at a meeting of its Board of Trustees, June 6th, 1910, unanimously decided that beginning with the thirty-eighth annual session which opens September 5th, the school should hereafter be conducted as a regular school of medicine. Dr. James Moores Ball was elected dean, and Dr. W. T. Burdick, secretary of the college.

The American Medical Association,

Which met at St. Louis, Mo., June 7-10, 1910, elected Dr. John B. Murphy, of Chicago, president, and Dr. Geo. H. Simmons, of Chicago, was re-elected secretary. The sixty-second annual meeting will be held in Los Angeles, California. We regret that want of space precludes our giving a fuller account.

Eastern State Hospital.

The local board of directors of this hospital, recently appointed Dr. J. E. Brumback, of Woodstock, Va., an assistant physician for the Hospital, to enter upon his duties July the first. Dr. Brumback graduated about a year ago, and for the past year has been interne at the Maryland General Hospital, Baltimore.

Dr. M. P. Rucker,

Who was President of the Board of Health of Manchester, under the annexation ordinance of this city with Richmond, Va., becomes Assistant to Dr. E. C. Levy, Chief Health Officer of Richmond.

Dr. E. T. Rucker, who was City Physician of Manchester, becomes one of the District Physicians of Richmond, under this same law.

Richmond Nurses' Club.

The graduate nurses of Richmond, Va., met at the Virginia Hospital on June 10th to organize a local association, adopting the name of "Richmond Nurses' Club." Miss Elizabeth Detwiler was elected president, and Miss Evelyn Daniel, corresponding secretary.

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AN APPRECIATION OF LOUIS PASTEUR.*

By HIRAM BYRD, M. D., Jacksonville, Fla.
Assistant State Health Officer, etc.

Ladies and Gentlemen: "Universal history—the history of what man has accomplished in this world—is, at bottom, the history of the great men who have worked here."

These are the words of Thomas Carlyle. Seventy years ago that rarely gifted thinker and philosopher delivered a course of lectures on "Heroes and Hero-Worship," in which he figured the hero as a god, prophet, priest, king, poet, man of letters, and it may be a matter of surprise that he did not add the hero as a man of science. But the reason is not far to seek. The great science of which medicine is the center was hardly born. Pasteur was only 18 years old. Mathematics and astronomy had made tolerable advances, for Newton had already lived, but these are branches of science that are not democratic, and never come close to the heart of a people. Anatomy had struggled along since the discovery of the circulation by Harvey, but biology was deplorably chaotic. In fact, it was little more than one long quarrel over the origin of life—some, a majority, perhaps, holding to the idea of spontaneous generation, and others holding directly opposite views. The chance theory, exploited by Empedocles, held that animals spring from the earth whenever it is properly and sufficiently warmed. Hear Van Helmont tell how to produce a pot of mice: "It suffices," he says, "to press a dirty shirt into the orifice of a vessel containing a little wheat. After about twenty-one days the ferment proceeding from the odor of the wheat effects the transmutation of the wheat into mice." He asserts that he has witnessed it and adds with great assurance: "The mice are born full-grown; there are both males and females. To reproduce the species, it suffices to pair them."

Surgery was newly divorced from the barber, the height of whose skill was blood-letting, and in its new role, boasted of its greatness, while it apologized for its own existence.

Hear Lawrence Heister extol the advances of his profession: "At length in the last and present age, by the industry, first, of the Italians, French and Germans, and more lastly also of the English, surgery has been so wonderfully enriched with extraordinary inventions and observations in anatomy, mechanics and physics, and with elegant instruments and new methods of curing, that it seems to want little or no addition to raise it to its highest state of excellency and perfection." Then almost the next instant note the apologetic manner in which he approaches the patient:

"As soon as ever the surgeon is introduced to the patient, he ought, in the first place (as Hippocrates advises), to enquire of him or his friends or domestics what ails him? Where is the seat of his complaint? From what cause it proceeds? How long it has been upon him? If there is no particular objection he should examine the part himself."

But it is chemistry that dominates medicine of the time, and chemistry is little more than a compound of ill-grounded theory and fragments of alchemy, from which it sprung—the very word chemistry is from alchemy. The seventeenth century, and far into the eighteenth, were dominated by the alchemists, trying, on the one hand, to convert the base metals into gold, and on the other to discover, through the manipulations of gold and silver, the elixir of life—that panacea that will cure all diseases and keep people forever young. No one doubted that such a thing existed if it could only be found, and the alchemists, thinking they were hot on its trail, followed the pursuit

*Read before the Florida Medical Association, April 6-8, 1910.

with a persistence worthy of a better cause. Here and there a man would boldly announce that he had found it, and the people would flock to him for the wonderful elixir as they would to the very gates of Heaven if they were held ajar. Witness Cagliostro, the father of patent medicine, selling a secret nostrum under the guise of the elixir of life—parading his young wife as a woman over 90 years old and claiming that his wonderful elixir had retained her youth and beauty. See Ponce de Leon traversing the wilds of Florida in search of the fountain of youth, for some thought that the elixir would be found in some spring of mineral water.

And then see alchemy, in its search for the wonderful elixir, broaden out to include the mixing and compounding of every conceivable substance. Hear John French's prescription for viper wine:

"Take the best large and fat snakes, four or six, according to their bigness, and put them into a gallon of the best Canary sack; let them stand three months and then draw off as you take it. Some put the vipers into the wine alive and there suffocate them, and afterwards treat them as above. This viper wine cureth the falling sickness, by drop doses and strengthens the brain, hearing, and sight, and preserveth from gray hairs; and is good against stings, bites, and pestilential infections. * * * It also provoketh to love and cures the leprosy and all worst corruptions of the blood."

It is hoped that superstition reached its climax in the sympathetic powder of Sir Kenelm Digby, the Knight of Montpelier. This powder was not to be applied to the wound but to the instrument that inflicted it—not to the soldier but to the sword. Let the wound be ever so vital, while the soldier lay bleeding ,the surgeon busied himself dressing and anointing the sword. Hear it described by Walter Scott, in "The Lay of the Last Minstrel":

"But she has taken the broken lance,
And washed from it the clotted gore,
And salved the splinter o'er and o'er.
William of Delorain in trance,
Whenever she turned it round and round,
Twisted as if she galled his wound,
Then to her maidens she did say,
That he should be a whole man and sound."

Such was medicine as Pasteur found it. Somewhere in Hans Christian Anderson's Fairy Tales is a little girl that was put to sort an immense pile of rags, putting each kind in a bundle to itself—a more hopeless task for the little waif could never have been set, but a good fairy touched the pile of rags with her magic wand and they all separated, each kind to itself. It was the magic wand of Pasteur that was to bring order out of this chaotic mass of ignorance and superstition—not in an instant, but in a long life time; not with the ease of the fairy wand, but by the labor of a strong man, to whom labor is a ruling passion.

The works of Pasteur constitute one unbroken chain of triumph. In his youth he had looked forward to devoting his life to chemistry. He had read all the authors on chemistry and physics with such studied precision that not a statement escaped his careful scrutiny. And among these he had found a note from Mitscherlich that arrested his attention and held him as in a vice:—

"The paratartrate and the tartrate of soda and ammonia have the same chemical composition, the same crystalline form, the same angles, the same specific weight, the same double refraction, and consequently the inclination of the optic axes. Dissolved in water, their action is the same. But while the dissolved tartrate causes the plane of polarized light to rotate, the paratartrate exerts no such action. M. Biot has found this to be the case with the whole series of these two kinds of salts. Here the nature and number of their atoms, their arrangement, and their distances apart are the same in the two bodies."

How, asked Pasteur, can two substances be so alike and yet not be identical? And yet they are not alike, for one rotates the plane of polarized light to the right, the other does not. There must be, there is, some fundamental difference between the two—it must be found. And this was his first self-set task. To find the difference between the tartrates and paratartrates—that fundamental something that makes one deviate the plane of polarized light and the other not.

He examined the substances anew—prepared them fresh—examined their crystals, and here he found something that had escaped Mitscher-

lich—he found certain little facets hitherto unobserved. It is these, he reasoned, that act upon the light. And with respect to these facets he observed that the crystals were not symmetrical. And *that,* he surmised, was the reason the tartrates deviated the light to the right.

He saw if this were so that the paratartrates ought to have symmetrical crystals, for they do not deviate the light, and with a feverish haste examined the crystals of the paratartrate. But he didn't find what he expected—he found certain crystals just like the crystals of the tartrate, and he found certain others that differed from these only in being, so to speak, left-handed. In other words, the tartrates are composed of right-handed crystals and the paratartrates of a mixture of right- and left-handed crystals. In a word, he had discovered molecular dissymmetry.

We must not leave him here, for there are other things awaiting solution—other phenomena to be found, explained.

Suppose he should separate the paratartrates into two portions, putting the right-handed crystals together and the left-handed together, and should test them out. How would they behave? If his observations and interpretations were correct, there could be but one result—the right-handed would deviate the plane of light to the right and the left would deviate it to the left. By hand he separated them. He had no sooner got them into the polariscope than he saw his predictions fulfilled. He hastened from the laboratory and met Bertrand, the assistant professor of physics, and exclaimed: "My dear Monsieur Bertrand, I have just made a great discovery! I have separated the double paratartrate of soda and ammonia into two salts of inverse dissymmetry, and exerting an inverse action on the plane of polarization of light! I am so happy that a nervous tremulousness has taken possession of me that prevents me from looking through the polariscope again."

He did not stop with this discovery of molecular dissymmetry, but continued the study of the tartrates and paratartrates. He found that right-handed acids with neutral bases produced right-handed salts; that left-handed acids with neutral bases produced left-handed salts; that right-handed acids with right-handed bases, produced yet more right-handed salts, and so on. He found that a mixture of right-handed crystals and left-handed crystals in solution gave a neutral solution. He had seen this in the case of the paratartrates. He continued his studies from every conceivable angle to see if any property had escaped him, and at last he fermented them; fermented a solution of the paratartrates, which you must remember is composed of right-handed and left-handed crystals, and behold! The plane of polarized light began slowly to deviate to the left. This was a new and unexpected phenomenon. What did it mean? His interpretation was that the right-handed salt was being used up under the influence of fermentation, and that the left-handed remained free to exert its action upon the light. But what was there in fermentation to act upon the right-handed salt and not the left? Only a living ferment would explain it—a ferment that had the power of selecting its food. And this was Pasteur's next great discovery—that fermentation is a living process. Fermentation has hitherto been a chemical phenomenon, henceforth it must be a physiological one. Before he could continue fermentation must be studied. He saw behind this simple fact some secret hidden law that must be laid bare.

But who should do it? His work was laid out—he was to study molecular physics—he had already moved the frontier of knowledge forward; success awaited him at every turn. Could he stop to study fermentation? And while he thus pondered an incident settled it for him. He was nominated dean of the faculty of science at the University of Lille. One of the principle industries was the manufacture of alcohol from beet root. Pasteur resolved to devote a portion of his lectures to the study of fermentation. He felt that if he could make himself directly useful to his hearers, he would thereby excite general sympathy and direct attention to the new faculty. He was filled by the reflections suggested to him by his study of fermentation. He would look deeper into it. And as he peered he saw the part played by fermentation in the economy of Nature, widening and ever widening. "All that has lived must die, and all that is dead must be disintegrated, dissolved, or gassified; the elements which are the substratum of life

must enter into new cycles of life. . . . One grand phenomenon presides over this vast work—the phenomenon of fermentation."

What is the cause of fermentation, putrefaction? When an animal dies it disappears. Where has it gone? A part of it has turned to gas, and thus we smell it; apart has passed away as water, perhaps but all is gone and no trace left behind. Where? How is the disappearance of the dead body of a fallen tree to be accounted for? What is the explanation of the souring of milk? Of the sharpening of cider? Of the formation of vinegar? Of dead leaves and plants imbedded in the earth and forming soil?

Hitherto this had all been explained on a chemical hypothesis. Liebig had stamped it with his authority. Was this right or was it wrong? A chemical explanation did not satisfy Pasteur. He would study it for himself.

He first studied lactic fermentation, and he found the little germ that does the fermenting—a little plant, visible only under the microscope, but a growing, living thing. These germs had been seen before, to be sure; Leuwenhook had seen them, and so had Cagniard-Latour, and had seen them budding and growing, but they had attached no importance to them—had regarded them as an accident. It remained for Pasteur to see in them an instrument of great power in the economy of nature. And thus was discovered lactic ferment. Another link added to his chain. The next link added was the discovery of butyric ferment, and another, alcoholic ferment, and later acetic ferment.

And thus he found that each fermentation had its own special ferment—its own special germ—that one kind of germ caused alcoholic fermentation, another butyric fermentation, another acetic acid fermentation, and so on. He found that each kind of germ needed a certain kind of food to work to best advantage. He found that some work best without oxygen and others best with it. And thus he classed them as aerobies, those requiring oxygen, and anaerobies, those working without oxygen. He found that when wine went bad it was because some of the wrong kind of germs had gotten into it, and he found that by heating it to a certain point after it was bottled would kill them and prevent deterioration, and this heating process came to be called "Pasteurizing wine." He found that when vinegar went bad it, too, was due to contamination with hurtful organisms, and he found how to prevent it. And he learned the same thing of beer.

And thus he had covered the diseases of those products—had come to a clear understanding of their nature and how they can be prepared with assurance that they will not go bad—in a word, he had annihilated the diseases of wine, beer and vinegar.

And so, step by step, each suggesting another he passed from chemistry to molecular physics, and there left his imprint by discovering molecular dissymmetry, and on he went to fermentation, and discovered that it is a living process; discovered that each kind of fermentation has its own peculiar kind of germ; discovered that each kind of germ requires its own special food; discovered that what we call diseases of wine, beer and vinegar, are due to the action of foreign germs; discovered how to control these foreign germs and prevent the diseases they cause. In a word, he had learned their inmost secrets, had controlled them and had thereby redeemed three of the large industries of his country. It was only a step to another disease that was devastating another of France's principal industries—I mean the silkworm disease.

I cannot tell you in detail the extent to which the very life of the population rested upon this industry, how it constituted the universal livelihood, how in the dwelling, from the best rooms to the kitchen, the silkworms were reared, how every schoolboy reared a few in his desk, how the common salutation was changed from how are you, to how are the silkworms? Nor can I tell you the dismay with which the first signs of disease among the worms was noted, and as it rapidly spread from hurdle to hurdle, from nursery to nursery, till the whole country was covered, the utter misery that folowed in its wake, when the one industry, the one livelihood, was completely cut off. The population became desperate. The Senate was assailed with a petition signed by 3,600 mayors, municipal councilmen and silk-growers. But what could the Senate do? At last M. Dumas, Pasteur's old teacher and

friend, implored him to undertake the study of that disease.

At first Pasteur refused, for he knew nothing of silkworms. "That is the better reason why you should undertake it," said Dumas. Pasteur yielded, and in less than a year he not only understood the two diseases (for he found that the worms were dying from two instead of one), but he knew how they could be controlled—prevented. He brought back to that part of France all its former prosperity and happiness, and for the first time in the history of the world was it understood that disease—epidemic disease—might be controlled in the animal creation. Another link was added to his chain of triumph.

It is only a step from the disease of the silkworm, caused by an organism, to a deadly disease among cattle and sheep, called anthrax. In 1850, Davaine had found in the blood of animals suffering from anthrax a little filamentous organism which he concluded was the cause of the disease. For twenty-six years this discovery bore no fruit, and it was not until Pasteur took it up and reconciled conflicting observations that Davaine's organism was established as the cause of anthrax.

During his studies upon the bacillus of anthrax Pasteur inoculated with it a great variety of animals. He found that the cow, the sheep, the rabbit and the guinea pig are easily inoculated with it; that the dog and pig seldom have it, and that chickens could not be inoculated with so virulent a disease. He suspected the bodily temperature of the fowl was a factor, and grew the organism at different temperatures. He found that it would not grow at a temperature just above the temperature of the chicken. And thus it was shown that fowls were protected from the disease because their blood is too warm. If the blood of the chicken were cooled would the organism grow and develop in it? He put the feet of the fowl in water and kept them there and then it succumbed to anthrax. He had more than settled the question of Davaine's organism—he had thrown a flood of light upon something else—he had opened the way to vaccination. He next studied chicken cholera. He found the organism that causes the disease and grew it in chicken broth. He could then inoculate the chicken and produce the disease at will. Curiously enough, he found that if he grew the organism of fowl cholera in the presence of oxygen it ceased to be pathogenic—ceased to produce the disease. He had attenuated the organism—had rendered it harmless. He could now give it to chickens and they would get sick but would not die. Then he could give them virulent organisms and they would recover; he had immunized them with an attenuated virus—he had vaccinated them. He had gone a step farther than had ever been gone before, except in vaccination against smallpox, and that was never until now understood—Jenner had stumbled upon a fact which he did not understand. Pasteur had laboriously worked out a similar one which he not only understood, but which also interpreted Jenner's find. And that was the real beginning of serum therapy and vaccination by artificially attenuated virus.

At the International Medical Congress, held in London in August, 1881, Pasteur was received by the 3,000 doctors present with enthusiastic applause. And never did a man's modesty become him more than upon that occasion. Speaking of attenuating the virus, he said:

"I have lent to the expression vaccination an extension that I hope science will consecrate as a homage to the merit and immense services rendered to humanity by one of the greatest men of England—Jenner."

But Pasteur was not yet through with vaccination. He had suffered a stroke of paralysis, from which he had only partly recovered, but his indomitable energy kept him at work. With the aid of his loyal and devoted assistants, he was yet to show the world in a larger way how to use the facts that he had garnered. Step by step he had ferreted out the cause of silkworm disease and of chicken cholera and anthrax and had established the fact that each was due to a specific organism. But these discoveries meant nothing unless they could be turned to practical account. He had controlled the silkworm disease. He had attenuated the organism of chicken cholera, as Bouley said, had domesticated it, and turned it into a vaccine that would prevent subsequent attacks of the deadly disease, but no practical use had been made of the knowledge that anthrax is due to a particular germ. Thitherward he

urned his attention, and here a new obstacle was encountered—one undreamed of. He had isolated the anthrax bacillus, he could grow it in pure culture, could reproduce the disease with it at will, but when he tried to attenuate it—tried to reduce its virulence by exposing it to the air—instead of becoming attenuated it formed spores and settled down to await an opportunity to light up again with all its virulence. For spores, you must understand, correspond to the seeds of plants of the higher orders, and lie dormant until brought into suitable conditions for propagation. Spores cannot be attenuated—can hardly be destroyed. Pasteur had found it easy to attenuate the organism of fowl cholera simply by growing it in the presence of air, for that does not form spores. But when he attempted to attenuate the bacillus of anthrax by growing it in the presence of the air it at once took refuge in the spore form and refused to be influenced by further action.

Now Pasteur reasoned that if he could find some method of keeping this germ from forming spores then he could attenuate it. Days, weeks, passed—experiment upon experiment multiplied. Pasteur became more and more absorbed. His face began to wear an expression which his daughter described as that of an approaching discovery. And well it might, for such a discovery was close at hand. At last the light burst forth like a noonday sun—he had only to grow the anthrax bacillus at a temperature of 44 degrees and spores would not develop. The discovery was made—the problem solved. Anthrax vaccine was in sight. The spores eliminated and the rest was as in chicken cholera. He was called upon to prepare vaccine on a commercial scale and at the end of the first year he had vaccinated no fewer than 33,000 animals; the next year 400,000, and the third half a million.

To a mind like Pasteur's these were not isolated facts—they were laws, parts of a great universal system. He saw that the same laws that govern disease of wine, govern the disease of beer, of vinegar; that they govern the diseases of silkworms, pebrine and flacherie, that they govern the diseases of domestic animals, as anthrax, and as they are laws of disease, they apply to all communicable diseases wherever found, whether in the vegetable creation or the animal; whether high or low, and thus he unconsciously added new meaning to an expression coined by his illustrious contemporary—Darwin. He had added the world invisible to the world visible, and he saw that the struggle for existence is a struggle through both worlds. Darwin had seen millions of individual plants of over 250,000 species, and millions of animals of over 3,000 kinds, all turned loose in the world together, all striving for food, shelter and the means by which they can propagate their offspring. He had seen all the animals, plants, struggling for life—animals struggling with one another for food, place; plants struggling for room, soil, moisture, light—every plant, every animal, for self; knowing no law but the law of self preservation having no care except the care of the individual and his offspring, no instinct except to get all it can and turn it to its own account. And in that fierce struggle for existence how many animals, plants, must daily, hourly, perish, fall prey to some stronger, more ingenious appetite! How many blades of grass must go to feed a caterpillar; how many caterpillars to feed a sparrow; how many beetles to feed a toad; how many toads to serve an adder; how many adders, sparrows, hares to feed a single hawk? But it does not stop here—not only does the smaller make food for the larger, the weaker for the stronger, but the larger in turn must contribute to the sustenance of the smaller, the stronger must nourish the weaker. The dog must feed its fleas, the chicken its mites, the cow her ticks, the child its worms.

Pasteur saw that this awful struggle for existence does not stop here, but penetrates every part of the organic world—from the lion making food of the buffalo to the malarial parasite making food of the human blood; from the mistletoe penetrating the oak with its roots to the tubercle bacillus penetrating the human lungs. He saw that what we call disease is but the result of the struggle for existence; saw that the creatures of the world invisible mean no harm to their host, but only seek their own sustenance, just as in the world visible; saw that when a higher animal dies of infectious disease it is because he has been an unequal match for his microscopic foes; and that no sooner is he dead than another class of germs begin to feed upon him—the germs of

putrefaction—and soon he is reduced to the dust from whence he came, and that very dust is used again to be incorporated into other plants, other animals.

In the language of the "Tent Maker":

"I sometimes think that never blows so red
The rose, as where some buried Caesar bled;
That every hyacinth the garden wears,
Dropt in her lap from some once lovely head."

It is not easy to relate the things that Pasteur did—to estimate his influence in the world. The natural sciences have been greatly enriched by his work. The manufacture of wine, beer and vinegar have been revolutionized by it. The silk industry was redeemed and put upon its former high standing. The stock raising of Europe was literally made anew by the elimination of anthrax from among cattle and sheep, and swine erysipelas from among hogs. The poultry industry was saved enormous losses from chicken cholera. It was Pasteur that put biology for the first time in the annals of the world upon a stable basis by settling and setting aside, for once and all time, the dispute over spontaneous generation. It was Pasteur that made bacteriology. It has since been wonderfully enriched by Koch, Klebs, Metchinkoff, Kitasato, Donovan and Wright and many others. But if nothing had been added, if it had been left as Pasteur left it, we would still have had in bacteriology a rich and important science. It was Pasteur, Lister and Long that made surgery. The late Nicholas Senn says the discovery of the mirobic cause and real nature of inflammation was the first and greatest triumph of scientific medicine, and has contributed more to the prolongation of human life and the mitigation of human suffering than all previous medical knowledge which had accumulated from the time medicine was first practiced and taught. And he adds that the two distinguished central figures that have inaugurated this new and enlightened era in medicine are Pasteur and Lister—the two two men who, to his mind, have conferred a greater benefit upon the human race than any other two mortals since the world began. Senn should have included Crawford W. Long, of Georgia, in that group. Pasteur discovered the bacterial cause of inflammation, Lister showed how to apply it in practice, but it was Long who lulled the sufferer to sleep with an anesthetic, while the painful operation was performed. It was Pasteur that founded sanitary science. With the solitary exception of vaccination against smallpox, the prevention of disease before Pasteur's time consisted in running from it. It was not Pasteur that discovered vaccination—Jenner did that—but it was Pasteur that interpreted it and made it possible to apply vaccination not only to smallpox, but to anthrax, hydrophobia, plague, cholera, typhoid, and no one knows yet where it will end. It was Pasteur that laid the foundation for serum therapy, which has meant so much in the treatment of diphtheria, and which is now dominating medicine to such an extent, and will become a more and more important factor as the years go by. To tell all that he did were impossible. He made a dozen discoveries, any one of which would have secured his fame for all time to come. If there is on earth what would fitly be called the center of medical and scientific knowledge and research, it is in a three-story brick and stone structure in Paris, erected for Pasteur to carry on his work, and called the Pasteur Institute. It is there that such men as Metchinkoff, Chamberland and Roux have prosecuted their labors—a fit monument to such a man as Pasteur. In front of the building is the statue of a shepherd boy, some 14 years old, throttling a mad dog. The story of the boy is that he saw the rabid animal attack a group of children and ran to their rescue, throttled the vicious brute and beat him to death with his shoe, but in so doing he received over a dozen bites. He then took the Pasteur treatment and the incident was closed. But in grateful recognition of Pasteur's work on hydrophobia this monument was erected. You never Pasteurize your baby's milk but that you pay homage to the man who taught us how to do it.

But over and above and through all these individual advances and discoveries he not only created scientific medicine, but he gave it an onward and upward impulse; an impulse that opened the way to Reed's brilliant discovery and the subjugation of yellow fever, that scourge of humanity that for 116 years hung like a pall over the American people; that has enabled us to keep the tropical American ports open the year round; that has made the Panama canal possible; an impulse that will gather momentum with the fleeting years, for "Thought once awakened does not again slumber; it

unfolds itself into a system of thought; grows in man after man, generation after generation, and sheds its influence like a benediction upon the world beneath."

"You will see," he often said, "how it will all grow by and by. Would that my time were longer."

No man in the history of the world ever made so many important discoveries, discoveries that militate to the well being, not of France, but of humanity; not for the hour, but for all succeeding ages.

And no man in the history of the world ever stirred up more opposition to himself. Old opinions, like the proverbial cat of nine lives, die hard. Those who stand godfather to such opinions cherish them as if they were their own. When Liebig saw his chemical theory of fermentation being strangled he came to its rescue, but to no avail. It had lived too long already; it must now give place, not to another theory, but to a fact.

When Pasteur attacked the question of spontaneous generation Biot dissuaded him. Dumas told him that he wouldn't advise any one to occupy himself with it too long. M. de Senarmont alone stood by him, and said to Biot: "Let Pasteur alone, if there is nothing to be found in the path he has entered, don't be alarmed, he will not continue in it. But," he added, "I shall be surprised if he finds nothing."

Pouchet and Joly were the great exponents of spontaneous generation. Pouchet contrived an ingenious experiment to prove his point. He filled a bottle two-thirds full with water and boiled it to kill all life inside. He then turned it upside down in a bowl of mercury and when it had cooled he introduced oxygen into the bottle through the mercury. Then he put a wisp of hay in, in the same way, hay that had been heated to kill all organisms, and yet in a few days a mould appeared on the hay. "How did it get there, this mould, this living thing?" cried Pouchet triumphantly.

But Pasteur came to disturb his triumph. He showed where the mould got in and showed how to keep it out. While Pouchet had guarded against introducing the mould through the water, by boiling it, and had guarded the oxygen and the hay, he had not guarded the mercury, and in the contest Pasteur alluded to it as Van Helmot's pot of mice, and showed where the mice got in. Pouchet and Joly were completely vanquished. Pasteur had shown that all life is from life—"Omne vivum ex vivo"—that as oaks only come from parent oaks; as animals of the higher orders only come from parents of their kind, so too, does a mould; a fungus only come from a parent mould or fungus, a malarial parasite only from a parent of its kind. He had not only shown how the mice got in—he had established a law—he had vanquished at one blow the adherents of spontaneous generation.

At the International Medical Congress held in London in 1881, Dr. Bastian, who practiced in one of the London hospitals, attacked Pasteur's germ theory of disease. He said he couldn't deny the existence of parasitic disease, but in his opinion the microbes were the effect and not the cause of the disease.

"Is it possible," cried Pasteur, "that at this day such a scientific heresy should be held? My answer to Dr. Bastian will be short. Take the limb of an animal and crush it in a mortar; let there be diffused around those crushel bones as much blood or other normal or abnormal liquid as you please, only don't break the skin, and I defy you to exhibit on the following day, or any time while the malady lasts, the least microscopic organism in the humours of this limb." Bastian was silenced, he did not accept the challenge.

At that same meeting Koch said to a French physician that the possibility of attenuating virus was too good to be true. And thus he formally opened the question again.

The following year the International Congress of Hygiene met in Geneva. Koch was there; so was Pasteur. Pasteur answered Koch's criticisms, exposed his errors, and challenged him to discussion before competent judges. Koch as a young man, was one of promise—brilliant, studious, energetic—and he has lived to make his promise good; he is ranked to-day as a star of the first magnitude; but never in his life did he show better judgment than when he declined to meet Pasteur in open debate. Pasteur never fought except when he knew his grounds, and woe unto his antagonist when he did. I can well imagine that Pasteur carried in his mind Polonius' advice to his son, "Beware of entrance to a quarrel, but being

in, Bear't that the opposed may beware of thee," for that he was incarnate. He hotly answered an opponent once, "If you know the subject, where is your conscience; if not, why do you meddle?"

And how many times he had to go back and cover his same ground to allay opposition, for unless his discoveries were accepted and used they meant nothing. So that through his long life he had to fight a dual battle—fight for knowledge and fight to get it accepted. Even his elucidation of the silkworm disease was not accepted until the Emperor took it in his own hands and proposed to Pasteur to go into Austria to the Villa Vicentina, which belonged to the Prince Imperial, and there try out his methods on a commercial scale. Pasteur gladly accepted, for the silk industry there had for ten years hardly paid for the eggs. His success was marvelous. The sale of cocoons the first year gave a net profit of 26,000,000 francs. The Emperor was so pleased that he appointed Pasteur a Senator. But just then the great war between France and Germany overthrew the Imperial Government of France and Pasteur never sat in the Senate.

It was during this war that Pasteur for once stepped aside from his heathen paths, in library and laboratory, to raise his voice against the bloody murder of two nations. He wrote a formal letter to the University of Bonn requesting that his name be erased from its roll of honorary doctors.

I have only told you of a few of the things that Pasteur did—only touched the outskirts of the things that he saw. To him discoveries were valuable because they could be turned to account, to alleviate needless suffering or to prevent premature death.

That he made many mistakes, did a deal of useless work, no one denies, and those who would detract from his greatness dwell upon his errors. But it is only justice to him to remember that he was sailing an unknown sea without chart or compass. An eminent bacteriologist was once asked by what process he had acquired such a perfect technic. His answer was, "by making mistakes."

No wonder he made mistakes. He stood at the dividing of the ways—the medicine of the past was one thing; that of the future another. What Hippocrates was to the old, Pasteur was, and is, to the new. Even his mistakes were of value in elucidating the new science. He found some of them himself, but some were left for others to find—life was too short.

We, who live so far removed from Pasteur, separated by a generation, an ocean, and a foreign language, can only get to see fragments of the man. But give a zoologist a single bone and from it he will construct the entire animal. From the things that Pasteur accomplished we know what an earnest devotee of science he was, what an honest, enthusiastic worker, and with what seriousness he approached the great avenues of exploration. He was heard to regretfully remark on going to bed at midnight, "Seven long hours before I can get back to work." But as a boy he was not so serious. He used to go fishing instead of to school, and he liked drawing better than Latin. Many a time he had played hookey to draw a neighbor's picture. Even to this day such relics are to be found in the little village of Arbois, where his childhood was spent; and these pictures are all of a high order. It is a noteworthy fact that Emil Fisher, who is a man of rare judgment, believes that Pasteur's crystallographic discoveries were facilitated by his artistic perceptions. Many a good mother in Arbois used to regret that Louis did not stick to his brush, for he would have made a great painter. And who doubts it? A great man is great wherever he finds himself, whether scientist, poet, painter, musician, warrior—he is at bottom great and that greatness will manifest itself, regardless of occupation. Napoleon has words in him like Austerlitz battles! Michael Angelo showed his greatness, first in one direction and then in another, but whatever he did, he did with a master's hand. What couldn't Shakespeare have been in the supreme degree? asks Carlyle. Pasteur had all the elements of greatness—all the forces that those elements represent standing ready to do his bidding, whether with the paint and brush, whether with crystals, ferments, spontaneous generation or hydrophobia. And one of those was a fixedness of purpose, which he possessed in a supreme degree; but twice in his life he swerved from it. When he started out to study chemistry and came upon fermentation, like Moses of old, he turned aside to behold the burning bush; and he ever afterwards regretted that he did not get to follow up his chosen theme, crystallography. The other time was when he went

to the Ecole Normale and before he had been there two weeks had fallen in love with the president's daughter. He seems to have felt that he had committed a weakness, for writing to a friend about it, he said: "I, who did so love my crystals." Ah, little blind Cupid, that can change the purpose of even a Pasteur!

But falling in love didn't divorce him from his work. It is even said that on his wedding day he went to his laboratory as usual and had to be reminded of the event that was to take place. Nor did his work divorce him from his family. He was a kind, indulgent, thoughtful husband and father. When he was stricken with paralysis at the age of 45, and when all hope of recovery was gone, he said to St. Clair de Ville, "I regret to die. I could wish to render more service to my country." He told the doctor the details of his case in the presence of his wife, then apologized to her for dwelling upon his own misery in her presence, and never more alluded to it during the twenty-seven remaining years of his life.

Great depth of intellect is accompanied by great depth of feeling, and Pasteur had both. When he discovered molecular dissymmetry, his emotion was so great that he had to leave the polariscope. When the little village of Dole celebrated their Fourth of July (July 14th) the Mayor placed a plaque on the facade of the house where Pasteur was born, designating it as his birthplace. Pasteur was present and made a speech. He spoke with fond recollection of his mother and father, and told how his father used to say to him: "Louis, if I see you one day a professor in the College of Arbois, I shall be the happiest man upon earth." His great heart could hold it no longer; he burst into tears, not because his tears were shallow, but his feelings deep.

Pasteur was not only a scholar and scientist, he was a citizen and patriot. Hear him while delivering an address on his seventieth birthday:

"Young men," he said, "devote yourselves to those sure and powerful methods of which we know, as yet, only the first secrets. . . . Live in the serene peace of your laboratories and your libraries. First ask yourselves, 'What have I done for my education?' Then, as you advance in life, 'What have I done for my country?' So that some day that supreme happiness may come to you—the consciousness of having contributed in some manner to the progress and welfare of humanity. But whether our efforts in life meet with success or failure, let us be able to say when we near the great goal, 'I have done what I could.'"

Jean Martin Charcot said if it were customary to call an age after its greatest man the middle half of the nineteenth century would have been called the Pasteurian age. And if you will remember the celebrated names that graced that age you will see how much it means. It was an age in which every line of human activity seemed to produce its greatest man—electricity produced its Edison, its Rœntgen, its Alexander Graham Bell; biology its Darwin, Huxley, Spencer; poetry its Tennyson, Longfellow; physics its Tyndale; chemistry its Dumas; engineering its de Lessups; medicine its Koch, Von Behring, Charcot, and a hundred others, but among and above them all stood Louis Pasteur—

"Like some tall cliff, that lifts its awful form,
Swells the vale and midway leaves the storm,
Though round his head the rolling clouds are spread
Eternal sunshine settles on his head."

SOME PHASES OF ENDOCARDITIS.*

By ALEXANDER G. BROWN, Jr., M. D., Richmond, Va.
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In considering endocarditis it is not my purpose to deal with the usual and ordinary symptoms described in text-books, nor to endeavor to add to the experimental literature of this subject. It is my purpose, however, to deal with some clinical points that have presented themselves to me during the last few months as I have had under observation a series of cases of this character; and to draw attention to some newer work in this field in emphasizing my clinical points.

The usual conception of the clinical course and evolution of endocarditis is that it is an acute disease manifesting itself in a more or less definite form, that it appears during the course of an infectious process as a complication; for instance, during an attack of rheumatic fever, it shows itself in form; murmurs at one or more valves, dyspnœa, pain, petechial

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spots, septic fever, rapid pulse, frequent cough, bloody sputum, cyanosis, sweats, profound prostration, etc. First, there is a group of cases of endocarditis, not infrequently difficult of true interpretation that run long course in which the heart syndrome may appear upon the clinical stage only at intervals. In such cases the obscurity of the real pathologic state makes confusion in diagnosis; but the persistence of symptoms centering around the heart itself,—possibly, now and then, quiescent to the observer,—the irregular fever, the occasional chill, the periodic oppression over the precordium, faintness and shortness of breath, cyanosis, the rapid, irregular and flat pulse, decidedly point to the endocardium as the location of the cause of the clinical phenomena. Some of these cases are ambulatory, some are treated for malaria, others for "walking-typhoid" fever, some for tuberculosis, some for various acute conditions that may appear at the time most favorable as an explanation. There are other cases of this type that show only general weakness, nervousness, insomnia, mental unrest with a low temperature at intervals, with or without heart murmurs. Other cases of this type are characterized by emaciation, loss of strength, general weakness, nervousness, palpitation of the heart, cardiac pain, air hunger, signs of heart lesions, etc. These cases may be also ambulatory and of long duration. These are cases of chronic infective endocarditis. This phase of endocarditis has been recently described by Billings (1) in a study of fourteen cases, which he has confirmed by blood cultures and by autopsy. Those interested will find this an excellent presentation of the subject. I desire to add a case which has not come to autopsy but which presents positive signs of this chronic infective endocarditis.

Case: J. P., white, male, aged 13 years, in 1905 had an attack of rheumatic fever of six weeks' duration, recovery with fixed lesions in the heart, aortic regurgitation and mitral regurgitation. In the winter of 1906 patient had another mild attack of rheumatic fever with symptoms of endocarditis. Since patient has had periodic syndromes of cardiac type without rheumatic articular phenomena. These paroxysms are characterized by high range of fever, rapid watery pulse, dyspnea, throbbing venous pulse. The interval between the attacks varies from 3 months to 6 months. The severity and duration varies. During the last year the attacks have been more frequent and of longer duration. The loss of weight, the weakness, the nervousness, the insomnia and mental symptoms are more pronounced. No blood culture has been made. Examination during these illnesses reveals an apex beat diffuse and greatly displaced with retraction systolic in time; general precordial cardiac impulse; cardiac dullness well beyond the right sternal border and general loss of compensation and gallop rhythm. The high temperature and great prostration, excited state of mind mark each illness. The diagnosis of an infective endocarditis engrafted upon the sclerotic leaflets has been borne out by the course of the case over five years.

Meyer (2) emphasizes this point by reporting six cases that show a chronic infective endocarditis upon previous cardiac lesion. In his cases he notes as most important the following symptoms, fever, petechia in the skin, in the conjunctiva (in some cases, before they appear elsewhere), infarcts of internal organs, glandular enlargement, with or without distinctive cardiac signs.

L. Guinon (3) has reported an interesting case that illustrates this class of cases. It was a case of a 10-year-old girl in which the first symptom was left hemiplegia with disturbance of speech. Following this appeared convulsions, Kernig's sign, stiffness of neck. The second week showed a pleuropneumonia and embolism in internal organs. Cardiac lesion was recognized late in the syndrome. Autopsy and bacteriologic findings confirmed the diagnosis of chronic infective endocarditis.

The advances in our knowledge of endocarditis by blood cultures is another phase of this subject that I wish briefly to point out. The study of these cases to be made most accurately must be by blood culture. This work has been

done with considerable value by Rosenow in a series of cases. With a sharp hypodermic needle the blood may be secured from some prominent vein. By this means the source of the infection and its specific nature is determinable. In one group of cases the infection originated in a primary pneumonia, in tonsilitis, in alveolar abscess, in grip, infections in the aural cavities, and antra. The streptococcus infection has been met with frequently. In Billings-Rosenow series pneumococcus infection confirmed by careful control animal experiments. The conclusions reached by Rosenow are worthy of quotation:

"The blood culture in endocarditis is the best means of making an early diagnosis. It should always be made for identification and study of the infectious organism as well as for prognostic reasons. Barring accidents the greater the virulence the graver the prognosis."

Negative results in blood culture have a diagnostic value in the interpretation of clinical phenomena of the morbid endocardium. While the positive finding is important in associated cardiac symptoms the negative and repeated negative blood culture possesses peculiar significance in the clinical problem. For instance, to impress one side of the negative culture result, one case is reported in which the blood culture was persistently negative in spite of the persistence of clinical signs of infective endocarditis. In this case autopsy showed an abscess (gonorrheal) of the mitral valve, the encapsulation of the cocci rendered detection by blood culture impossible at this period of the infection, possibly it would have been positive at an earlier date. In cases of chronic valvular lesions that take on an acute syndrome simulating what is called malignant endocarditis the negative blood culture constantly secured would justify the clinician in looking carefully for local infections at other points in the body. In such cases the negative blood culture would afford the practitioner reassurance that the probability of acute infective endocarditis was small. One case is cited in which the obscure point of infection was in the form of an osteomyelitis of the upper end of the femur which upon discovery was promptly relieved by operation and was marked by a disappearance of the constitutional disturbance. (5).

Another phase of endocarditis (which I desire to direct attention to) is the relationship of syphilis to aortic endocarditis. A case in my practice directed my attention to this point as one worthy of consideration. Mrs. R., aged 45 years, contracted syphilis from husband early in married life. When seen presented symptoms resembling a left pleurisy and grip. In few days cardiac lesion was detected. Case assumed classical picture of ulcerative endocarditis. After some weeks of illness with all symptoms apparently assuaging and general improvement manifest, patient without warning suddenly died in slight convulsive seizure. The clinical diagnosis could not be confirmed by autopsy. The intimate and frequent connection of endocarditis at the aortic orifice and true aortitis with syphilis has been long clinically considered. Such masters in medicine as Ambrose Pare and Morgagni recognized the etiologic relationship but our present day view of this phase of cardio-vascular pathology is due to the work of Heller at Kiel. With the development of the Wassermann and Noguchi reactions and the discovery of the spirochetes it is possible to enter the study of the clinical conditions of the heart and blood vessels with more assurance of diagnostic exactness. The present value as far as my reading goes of the spirochetes in this work is little because of the limitations of establishing their presence even when dealing with typical lesions of the tertiary form. But with the reactions of Wassermann and Noguchi modification, pathologists familiar with the technique and modus operandi can be of great assistance to the clinician in such cases. Kaplan (6), who has recently written an interesting article on the two reactions, says in his conclusions (5) "With proper technique and well balanced reagents it is possible to report correctly in 98 per cent. of these cases." While the application of these reactions has not been as generally used in heart and vascular cases as in such nervous syphilitic diseases as tabes and paralysis yet the work of Frankel, Much and

Citron in aortic insufficiency and the finding of Wright and Richardson (7) of a structure morphologically identical with spirochetes pallida in five cases of aortitis gives hope of valuable additions to clinical diagnosis of all such lesions, especially in the case of aortic endocarditis. This advance in the determination of syphilis in aortic endocarditis and its complications secures another brilliant means of exact therapy as well as in diagnosis. Adler has claimed that syphilis plays an important part in all aortic lesions. This can be relied upon as approaching the fact in all cases in which rheumatism has been excluded as a possible primary cause. Collins and Sachs (8) have studied thirteen cases in which the disease was limited to the aortic orifice. Positive Wassermann was obtained in 92 per cent.; in 77 per cent. it was strongly positive. Of the thirteen, eight acknowledged syphilis; five either denied or were ignorant of it. In another series of eleven cases of mitral endocarditis the Wassermann reaction was positive in two only, negative in nine. In all these cases syphilis was denied. It seems from this review of this phase of endocarditis that in aortic lesions syphilis may be considered the great causative factor. In cases with rheumatic history it may be well not to exclude the possibility of the combined factors. To emphasize this point let me quote a case cited by Collins and Sachs: "A young man, aged 37, was admitted to the City Hospital with symptoms that suggested aneurysm, but the preponderance of evidence was finally in favor of incompetency of the aortic valves. The diastolic murmur was over the entire aortic area, which was propagated down the sternum, the Flint murmur, the forcible apex beat, and the hypertrophy, despite the apparent difference in the radial pulses, indicated aortic regurgitation. The patient made a remarkable recovery under rest and mercurial medication, which was pushed to the extreme as a result of the positive Wassermann reaction. Citron's study of aortic insufficiency, coming to Kraus' clinic for a year and a half prior to last summer showed that, although only 14 per cent. gave personal history of syphilis and only 26 per cent. evinced suggestive clinical signs, 62 per cent. gave positive serum reaction.

There is another group of cases of endocarditis that have been brought to my notice within the last few months. I refer to cases of acute septic endocarditis appearing as a complication of the puerperium. Case (a) was a patient of Dr. R. W. Miller, of Barton Heights, and was seen in consultation. After delivery patient had run a slight septic fever. Uterine cleansing was practiced immediately and patient appeared quite normal. Soon cardiac symptoms developed. Careful examination of the heart revealed no murmur, but a fluctuating fever, an occasional chill, a rapid pulse and a periodic alarming slow pulse, dyspnea, and feeble heart sounds made the diagnosis plain—endomyocardial inflammation. After many weeks in bed and most careful management of the case, Dr. Miller brought this case to a good recovery, although the case was ugly and alarming at times.

Case (b) was a patient of Dr. J. A. Hillsman, of Richmond. She had been a fortnight before, by operation, relieved of a dead six-months fetus. She had been skilfully treated locally and the pelvic region offered no explanation of the clinical picture presenting when seen in consultation. She had a chronic mitral lesion. Compensation was broken, the pulse too rapid to count, the liver line approached the umbilicus, the base of both lungs were consolidated, the heart was in gallop rhythm, and dilated, the temperature was 103 degrees F, the urine was scant and bloody, the sputum was blood-stained, there were petechial spots about the body, patient was supported upon pillows in sitting posture with rapid and labored breathing, etc. Diagnosis of acute septic endocarditis and broken compensation was made. After several months' treatment the case has been restored to fair health. The cardiac lesion at the mitral orifice is well cared for by the myocardium. These cases emphasize the importance of cardiac examination during the puerperium especially in cases that show any signs of infection. In such cases the

blood culture would afford the clinician valuable therapeutic information.

1. Billings, Arch. Inter. Med., Vol. IV., No. 3.
2. Meyer, Med. Record, N. Y., December 7, 1907.
3. Guinon, Bul. de la Soc. de Pediatte, April, 1908.
5. Libman, J. A. M. Sc., Vol. CXXXVI., No. 4, p. 548.
6. Kaplan, idem, January, 1910, p. 82.
7. Editorial, J. A. M. A., May 22, 1909.
8. Collins and Sachs, J. A. M. Sc., September, 1909, p. 344.

AN ATTEMPT TO CLASSIFY OUR KNOWLEDGE OF SUGGESTION.*

By W. P. CARR, M. D., Washington, D. C.

Let me say some things about suggestion. I shall try to classify our knowledge of this live and important subject and make you think—perhaps to some purpose.

Reading a business advertisement a few days ago I came across these words: "Suggestion as defined by the psychologist plays a most important part in the life of every man and is the motive power for two-thirds of his actions. This is a suggestion that the cheapest," etc., "at Cohen's."

That fellow knew his business. In fact every impulse that reaches the brain is a suggestion or causes a suggestion upon which reason sits in judgment and decides what action, if any, shall be taken. Sometimes a reflex occurs, even before reason has time to sanction or inhibit. When one feels a draft of air, an open window or door is suggested. If one *believes* a window to be open it suggests a draft and the draft is felt, whether the window be really open or not.

A good story is told of the man who awoke in the night in a strange room feeling terribly stuffy and oppressed. He got up in the dark and opened a window, or smashed it, and went back to bed entirely relieved. Next morning he found he had only smashed a window to a cupboard.

Many persons dread catching cold so much that the slightest suggestion of a draft makes them sneeze—just the sight of an open window. Others are so afraid of the evils of bad air that they feel terribly oppressed unless a window is open, even in cold weather. We all know how these conflicting suggestions lead to hostilities, often bitter and implacable.

I shall refer, however, only to such suggestions as are of interest as pathogenic or therapeutic agents, for some are causative of disease and others curative. Suggestion or the impression causing a suggestion must be accepted as a *fact*—as *truth*—before it becomes effective.

Unfortunately, pathogenic suggestions are easily credible, while those that are curative are not, and usually require some strong support to overcome the natural incredulity offered to them by reason. For example, the man who feels a pain in the region of some vital organ readily believes that organ the seat of serious disease. He does not readily accept the fact that it is only a rheumatic pain in a muscle overlying that organ. The superficial knowledge of anatomy and physiology that nearly every one has to-day and which is even taught children in the public schools, coupled with the smattering of pathology to be found in the daily papers, is one of the most powerful factors in promoting pathologic suggestion. Truly here "a little knowledge is a dangerous thing," and such teaching is a mistaken kindness. Every one knows the approximate location of his vital organs and is superficially familiar with the names of several dreaded diseases of each. Consequently, when one has a pain in the back, Bright's disease is suggested, though in reality it is generally lumbago. Palpitation of the heart is to him organic heart disease, though really dyspepsia.

One wise old physician refused to treat a great lady because she knew that she had mucous membranes. I forget his name, and he was wise in his generation, but he would have few patients in this age.

The advertising quack is an able second in producing evil suggestions. Did you ever notice how skilfully he constructs his questions to catch all readers? "Do you have headache?" "Do you have backache?" and a host of other symptoms that every man has at times, at least. "If you have any of these symptoms you should consult us at once or take our Swamp Root Kidney Cure." "Do it now! To-morrow may be too late.' And then follows a hint of the insidiousness and horrors of this disease.

Who has not had at least half a dozen of these symptoms and many others besides. And how many, alas! are started in this way on a course of patent medicines and quacks that leads at last to real disease and poverty? Then they come to a physician to be cured—free.

*President's address read before the George Washington Medical Society, Washington, D. C., May 21, 1910.

Imaginary diseases are easily produced. Trivial diseases are readily turned in imagition to grave and incurable maladies. When a suggestion has been once accepted it is hard to dislodge. Truth in these cases is usually met with incredulity, but there are at least three ways of making an apparently incredible thing believed. First, by convincing reason; secondly, by coercing or overawing reason; and, thirdly, by abolishing reason.

Reason may be convinced by scientific truth, or by pseudo-scientific trickery. It may be overawed or coerced by appeal to religious or supernatural agencies. It may be abolished by hypnotism or drugs.

Let us briefly consider these methods inversely. As the brain develops it is roughly true that the automatic centers governing the heart and respiration are the first to appear. Then the motor centers; then the centers for consciousness of being; and, later, consciousness of present surroundings, and finally reason and the higher psychical functions appear.

The least resisting centers to paralyzing influences are those that are last to appear. This is well illustrated in anesthesia by chloroform or ether. The higher psychical faculties and reason disappear first, then consciousness to present surroundings, though there is still a conscious ego. Then muscular relaxation begins and progresses to complete paralysis. The heart and respiratory centers are last to be overcome. The same phenomena are observed in opium poisoning and in sleep, either natural or hypnotic. Inhibition, at least in some of its forms, also disappears early. In the hypnotic state, when consciousness of present surroundings and reason have been abolished, the brain acts very much as a simple reflex center. Like the spinal cord of a frog whose brain has been removed, and where reflex response to stimulation occurs with mathematical precision, because there is no power of inhibition. Suggestion in the hypnotic state is received as absolute truth because there is no reason to confute it; and is acted upon with certainty because there is no power of inhibition.

Impressions made in this way may be lasting and the results remain after recovery from the hypnotic state. If we can believe Charcot, Louis and Bernheim, and many others, vital phenomena may be influenced in this way and vaso-motor secretory and nutritive changes produced. But when it comes to raising a blister with a postage stamp which the patient has been told is a blister plaster I must confess that I should like to be very sure no cantharides or other vessicant had accidentally contaminated that plaster; and I should like to be sure also that the eminent operator had not hypnotized himself and become a victim to suggestion originating in his own desire to get this result.

One of the most truly pious and conscientious ladies I ever knew was in this way, apparently, a most outrageous liar. But I am sure she really believed every statement she made to be true.

Nevertheless, we must believe that hypnotism is a reality and that suggestions made in the hypnotic state and accepted in that condition may produce results that are permanent, and that in the hands of such experts as Charcot and Bernheim, diseases have been cured by hypnotic suggestion. Mesmer, in France, and Greatrakes and Gassner, in England, used this method recklessly and indiscriminately and became immensely rich for their day. Mesmer held seances in Paris which were largely attended by the wealthy and fashionable. He is said to have seated his audience in his salon in groups around tubs of water containing bottles. Nothing is said of what those bottles contained, nor just how they were used, except that by sitting around them and gazing at them the patients gradually hypnotized themselves. In all seriousness, however, we are forced to believe that many persons believed themselves cured in this way of many and grievous maladies. What diseases are thus really curable we shall presently consider. Coercing reason or overawing reason by appealing to religious and miraculous influence is perhaps the oldest, as well as the latest, method of fakirs, quacks and cranks for gaining credence for their therapeutic suggestions. It began certainly as far back as 4,000, or possibly 6,000, years before Christ with the Egyptian priests. These dignified and imposing dignitaries are credited with curing all sorts of maladies and their cures, real or imaginary, were worked through suggestion aided by imposing religious ceremony and the faith of the people in the miraculous power conferred upon them by the gods. Priests and kings were in those days believed to be very close to the celestials. Rameses, the second, who was one of the shrewdest monarchs

and the greatest advertiser of ancient history, had carved in hieroglyphics on every available rock in Egypt the story of constant and mutual admiration and conferring of favors between himself and the gods. And this method of overawing reason has come down through all the ages to its culmination in the Christian Scientists and faith healers of to-day.

Sacred relics, sacred waters, cures by kings and priests with infinite variety, but slight modification of the underlying principle have studded history of savage and civilized nations from the very earliest days. The negro voodoo doctor, the Indian powwow, the Chinese devil chaser or devil killer, are but variations.

Since the Christian era the miracles of Christ have been ably used to aid and abet. Evil spirits, witches, charms, philters and a host of such agencies have been worked to the limit. If we can believe history at all, many, many thousands have truly believed themselves cured in this way of terrible afflictions. Were the cures real or imaginary? We will consider this presently.

First, let us glance at the quack's method of convincing reason. The pseudo-scientific method. He has ever seized eagerly upon the latest and least understood discoveries of science. Those least understood and consequently most mysterious to the public—magnetism and electricity—have been especially useful down to the X-ray and ultra-violet rays. It has not been difficult with such aids, cleverly worked, to trick the reason of the average man or woman, who knew something of the power of these forces and but little of their real nature and limitations. We frequently meet persons of considerable intelligence who think we can see spots on their livers with the X-ray. Indeed it seems only necessary to construct some plausible theory to have it swallowed whole, even by men of brilliant, though unscientific, minds, and this with no proof except a certain plausibility.

A fine example is the theory of metalotherapy, which is, in brief, that in every disease some metal is lacking in the economy which can be supplied by wearing a belt composed of every known metal in small discs. This was novel, simple, pleasing, and in the lack of direct evidence to the contrary, plausible, especially to those who knew that lead and mercurial poisoning could result from contact of those metals with the skin. This fake invaded the medical profession and claimed at least one eminent physiologist as an adherent.

Transfusion of blood from young animals was precipitated upon France by Brown Sequard and caused so many disasters that it was stopped by law. The drinking of bullocks' blood at the slaughter houses of Paris once became a fashionable cure, but met a similar fate for like reason.

Perkins, in Connecticut, in the early days of magnetism invented his famous tractors. They consisted of a rod of zinc and a rod of copper bound together in a fanciful manner. They were supposed to generate electro-magnetism and draw disease of any kind from the body by simply stroking the affecting part. Perkins had over 5,000 genuine certificates from persons who truly believed themselves cured by his tractors of cancer, tuberculosis and a host of serious lesions.

Notice that the quack never cures minor complaints. They are beneath his notice. Neither does the patient ever imagine he has a minor complaint for practically the same reason.

The life-giving property of oxygen has been largely played upon. Both real oxygen generators and those consisting like the vaunted oxydonor of a tin can and a string have had equal success. The can was thrown out a window and attached to the hand or foot of a sleeping patient by an ordinary string. It was supposed to collect pure oxygen from the air and transmit it with all its beneficent properties through the string to the sleeper.

I know one large family of unusually intelligent and well educated persons who believed in it most firmly. Electric belts, electric shoe soles, electric hair brushes, vacuum machines, pneumatic cabinets, inhalatoriums, homeopathy, osteopathy and many other appliances and cults belong to this class. All these things and theories, and many others, have been used with astonishing success to wheedle and trick the reason of man into accepting therapeutic suggestions. And while much good has undoubtedly been accomplished, untold harm has also been caused and millions of dollars stolen by their indiscriminate or criminal use.

Such measures are useless to the skilled

physician because it is seldom that a proper suggestion cannot be made credible without resort to chicanery. Occasionally a legitimate humbugging of a patient may be necessary for his own good. But it is never necessary nor right to humbug the whole family nor the general public.

And now let us see what diseases may be cured or relieved by suggestion, and the proper and legitimate methods of using it.

For our purpose all diseases may be roughly divided into five groups:

1. Imaginary diseases.
2. Partly imaginary diseases.
3. Acute self-limited diseases.
4. Chronic diseases.
5. Surgical diseases and injuries.

Group I.—There are very few human beings who do not at times have pains and aches and feelings of discomfort due to trivial and transient causes. If such persons have that superficial knowledge of anatomy, and physiology, and pathology, which no one can escape in this generation they are very prone to imagine they have one of the more serious and incurable diseases.

Heart disease, Bright's disease, cancer and syphilis probably lead the list. No man is going to worry much over any minor disease; consequently he will never imagine he has it. Catarrh, stricture, varicocele and impotency, however, are much dreaded, and consequently frequently imagined, because of the terrible pictures of them painted so luridly in quack advertisements. What physician is not familiar with the poor, melancholic individual who slides into his office in a shame-faced way and whispers the terrible secret that he has a stricture. And even after a 32 sound has dropped into his bladder of its own weight how hard it is to convince him of his error. He has read the advertisement of some quack who described his symptoms exactly—symptoms, by the way, which are common to all healthy men. Perhaps he has even been under treatment by one of these vultures, who has assured him that he had one of the worst cases imaginable and who bled him accordingly from the pocket.

At last, perhaps, when his money is gone, he is forced to trust his terrible secret and his forlorn hope to some reputable physician, who is not so great and busy a man as the quack; but who has, he hopes, humanity enough, and leisure enough, to treat him without charge. This man probably has neurasthenia or nervous indigestion from worrying over his sad condition. But it is only necessary to gain his confidence and make him *believe* that he is well, or cured, to effect a cure in reality; not only of his imaginary complaint, but of real disease resulting from worry. Group 1 is a large group, and offers a legitimate field for suggestion that will convince reason. This can usually be done by stating simple truth, but sometimes requires tact and patience. We must win the confidence of the patient and make him believe our suggestions, which are only the truth.

Group II is even larger. It consists of persons having indigestion with palpitation that they imagine is heart disease; lumbago that they are convinced is nephritis, or heartburn, which they mistake for cancer of the stomach; or eye strain, with headache that is to them some brain disease; chronic bronchitis that is consumption, and a host of other comparatively minor ailments that are believed by the sufferer to be dangerous or incurable affections. Suggestions properly used will cure the imaginary part, which is the worst by far, and will usually do more. It will allay worry and fear that have been aggravating the minor real disease, and often cure that also, or so improve it that the patient forgets it in his relief.

It is not necessary, wise, nor honest, however to coerce or overawe the reason by spectacular or costly mummery to accomplish this result, as is usually done by the quack. These means undoubtedly may cure, in such cases, but should never be used when it is possible by gaining the patient's confidence to convince his reason by scientific truth. Coercing the reason weakens it; and coercing dollars under false pretense is illegal and dishonest.

Group III.—A patient in the third group, of self-limited diseases, will get well, or die, under *any* treatment; and it is easy to make the friends believe that he got well *because* of the treatment, no matter what it was; or that he died *in spite* of its great help and power to cure. This group is still larger, includes, as it does, all the acute infections, many dietetic diseases and various poisonings. Considerable aid may come in these cases from a proper use

of suggestion; *but it should never be used to the exclusion of other treatment.*

In a severe case of typhoid fever the patient may be made really worse, and far more uncomfortable, by a continual suggestion of perforation, hemorrhage, peritonitis and other accidents; or, on the other hand, much benefited, cheered and comforted by the suggestion of a cheerful manner in his nurse and doctor, and by keeping before him as optimistic a picture of his case as truth will allow.

Every real improvement and favorable sign should be brought to his notice directly, or incidentally; and the best light consistent with truth put upon every unfavorable occurrence. At the same time everything possible should be done in the way of nursing, hygienic and medicinal treatment, and everything possible done to avoid complications or to recognize them promptly and give appropriate treatment should they arise. This is very different from telling him, as a Christian Scientist, that there is no such thing as disease; that there is nothing the matter with him, and trying to coerce his reason into believing a lot of unbelievable nonsense—doubly unbelievable to a man who is suffering real pain and malaise—telling him this, and neglecting the real valuable rest, diet, and supervision by a trained physician and nurse.

The same thing is true in all these acute diseases; and often the scale may be turned in favor of life by a judicious use of suggestion and certainly much suffering relieved. The same pain is much more severe and hard to bear if the patient believes it to be from peritonitis, than if he knows it is only colic. Thus we see that suggestion is really curative in Group 1, almost so in Group 2, and of very great value in Group 3. And these three groups probably comprise two-thirds of all the diseases that flesh is heir to.

Even in chronic and surgical diseases it is frequently of great value. In hysteria, and some mental diseases, it is the chief hope. But this is too long a story to enter into now. I have only endeavored to point out briefly something of the history of suggestion, of its use by quacks, and to give some hints of its real value and proper use that I hope will make you think.

Like all powerful agents, suggestion may be used for good or for evil. Its use in ignorant hands is often devoid of evil intent; and, on the other hand, its use by quacks who think only of making money, may sometimes accomplish good. But in the hands of either it is a dangerous power.

The chiefest danger, perhaps, is in overlooking or ignoring real disease demanding other treatment, until it becomes too late to cure it by any means.

But the patent medicine habit, which is established through suggestion found in quack advertisements, and the habit of going from one fakir to another in the quest of relief of ills largely imaginary, are both productive of untold harm to an immense number of persons.

Again, the effect of indiscriminate suggestion on the mind and intellect is certainly harmful. Coercion or abolition of reason tend to degeneracy, and in numerous instances land its victims in insane asylums. These are only a few of the dangers that lack of time forbids me enumerate more fully.

It is sad to see an innocent child suffer and die a horrible death from diphtheria, with no treatment but the prayers of a Christian Scientist, when we know that a few doses of antitoxin would almost certainly save its life.

It is sad to see a bright young man go without treatment for syphilis until the curable stage is past through misplaced confidence in some faith healer or quack. Sadder still when the victim is a woman or child who has acquired the disease innocently.

It is sad to see a cancer victim cheered by suggestion into belief that cure is progressing, until ulceration and cachexia make such a belief no longer possible.

It is sad to see hard-working, honest men and women played with through suggestion by quacks or fools as a cat would play with a mouse until a time comes when they can no longer play and are cast off with heartless indifference to burden the charitable institutions—moral and physical wrecks who could probably have been easily cured at an earlier period. I have seen all these things—not once, but many times. We have all seen them if our eyes were open.

I am no sure that I have a remedy to offer. I have not time now to make even a suggestion in this direction. But let us all think, and

think earnestly, to this end. Reputation is one of the strongest factors in creating confidence—the sort of confidence necessary for successful use of legitimate suggestion. This explains why a physician of good reputation can usually accomplish more than a beginner or an unknown man who is perhaps equally good. It also explains in part, the reason why quacks resort to the supernatural and pseudo-scientific; why they have invoked all the powers of good and evil, God and devil and witch and all the remarkable inventions of science, except, so far, the airship. I have little doubt, however, that we shall soon hear of the airship cure. It will surely be elevating in a sense and should appeal to the fresh-air cranks.

Seriously, it seems to me much more plausible than homeopathy, which is to my mind the most absurd theory that has ever gained credence, unless it be some of the doctrines of Christian Science.

But homeopathy has one thing in its favor. Its practitioners are, as a rule, capable of recognizing serious and dangerous lesions and conditions, and do not confine themselves to their creed in such cases, but use good old fashioned doses of both medicine and surgery. The real Christian Scientist, however, starts out with the startling proposition that there is no such thing as matter nor death nor disease. All the laws of physics and chemistry are rejected because they are founded upon the evidence of the senses and are, therefore, not reliable. They forget or ignore the fact that the evidence of their own doctrine comes to them only through reading or hearing—evidence of the senses of sight and hearing. I have talked long and seriously with some of the seemingly most intelligent of these people and this is all I could get from them. You will please notice too that in common with the vast hoard of quacks they have no free dispensaries and that the leaders are following in the footsteps of those monumental fakirs Greatrakes, Perkins and Gassner in amassing wealth.

In conclusion, let me say that I have endeavored to give a classified and orderly statement of the facts concerning this powerful agent, suggestion, which though far from complete I hope may stimulate better thought and a clearer understanding of the subject, and lead in time to its use only by those who are qualified to use it properly and who are honest.

1418 *L St., N. W.*

Book Notices.

Pocket Therapeutics and Dose Book. By MORSE STEWART, Jr., B. A., M. D. Fourth edition. Rewritten. Small 32mo. 263 pages. Philadelphia and London. W. B. Saunders Co. 1910. Cloth, $1 net.

The book, small enough in size to carry about in the doctor's satchel, will be found of service for frequent reference. It for the most part, is filled with tables of drugs, doses, therapeutic applications, etc. It is a *multum in parvo,* neatly published, and at a moderate cost.

Surgical After-Treatment. By L. R. G. CRANDON, A. M., M. D., Assistant in Surgery at Harvard Medical School, etc. With 265 original illustrations. Philadelphia and London. W. B. Saunders Co. 1910. 8vo. 803 pages. Cloth, $6 net; half-Morocco, $7.50 net.

This is a most excellent book for the purposes for which it was prepared. The skilled surgeon, either in hospital or in consultation, operates and leaves the patient in care of house surgeons or else in charge of the doctor by whom he was called in consultation, and to them he gives general directions. This book is chiefly for those who have charge of after-treatment of surgical cases; and is so explicit and full of detail, with the added value of numerous apropos illustrations, as to serve as a magnificent guide book in general after-treatment or in emergencies. It is a volume that should be in every hospital for the uses of the house surgeons, and in the hands of practitioners generally who may have to serve after the surgeon has done his work and left for his home. It is well indexed to help in ready references; but the volume should be carefully read in advance of an operation and kept at hand for ready reference when needed.

Pulmonary Tuberculosis and Its Complications. By SHERMAN G. BONNEY, A. M., M. D., Professor of Medicine, Denver and Gross College of Medicine. Second edition; thoroughly revised. With 243 illustrations—21 in colors and 73 X-ray photographs. Philadelphia and London. W. B. Saunders Co. 1910. 8vo. 955 pages. Cloth, $7 net; half Morocco, $8.50 net.

This book is written with *special* reference to diagnosis and treatment, and yet covers all phases of the subject, as indicated by the fact that it is divided into 106 chapters. The index takes up about 36 double-column pages. From a practical standpoint, beside being well

up to date, this revised and enlarged edition will prove of special service to the practitioner in the differential diagnosis, and in the advice as to what to do in the preventive as well as curative treatment of the disease. The importance of sunshine, outdoor life, forced eating, and the special value of sanitaria, properly located and conducted, etc., are well brought out. As a rule, it is well shown that one in whom the disease is early recognized, who has means enough to meet expenses and who is obedient to directions can get well. Such a fact points out the public policy of liberally providing for those whose income will scarcely allow them to carry out in full detail the instructions of their well skilled medical advisers.

Duodenal Ulcer. By B. G. A. MOYNIHAN, M. S., F. R. C. S., Leeds. Illustrated. 8vo. 379 pages. Philadelphia and London. W. B. Saunders Co. 1910. Cloth, $4 net; half Morocco, $5.50 net.

Due greatly to the observations of the author, the recognition of duodenal ulcer has become relatively easy during the past ten years. As one of the many forms of "dyspepsia," its diagnosis can be readily made in about 97 per cent. of cases; and its surgical treatment in skilled hands has proven, during the past two or three years, curative in about 98 per cent. of cases. Such is a memorable advance in the history of medicine. Analysis of symptoms and signs leaves scarcely a doubt as to the nature of the disease. The technique of operation for its cure is given plainly—so plainly, indeed, that the novice in surgery is too apt to undertake the operation without sufficient clinical training. The book is as good for the physician so as to recognize the causes, the diagnosis, etc., as it is for the abdominal surgeon himself. The space allowed us in a short book notice in no way gives us an opportunity to point out the true value of the book to doctors generally.

Diseases of the Eye. By G. E. de SCHWEINITZ, A. M., M. D., Professor of Ophthalmology University of Pennsylvania, etc. With 351 illustrations and 7 chromo-lithographic plates. Sixth Edition, thoroughly revised. Philadelphia and London. W. B. Saunders Co. 1910. 8vo. 945 pages. Cloth, $5 net.

The author met the popular demand years ago when he brought out the first edition of this hand-book of Ophthalmic Practice for students and practitioners; and each successive edition has even better served their purposes with the modifications and additions in each. The book now stands as a standard authority in colleges and with ophthalmic surgeons. Much attention is given to questions of diagnosis and operative technique. Where word descriptions would seem at all insufficient for clear understanding of the text the well chosen illustrations are specially helpful. Any one paying anything like special attention to eye diseases cannot well afford to do without this book.

Text-Book of Pathology. By JOSEPH McFARLAND, M. D., Professor of Pathology and Bacteriology, Medico Chirurgical College, Philadelphia, etc. Second Edition, thoroughly revised. With 437 illustrations. A number in colors. Philadelphia and London. W. B. Saunders Co. 8vo. 586 pages. Cloth, $5 net; half Morocco, $6.50 net.

It is a mistake on the part of most physicians to lay aside the attempt to keep up with pathology as soon as they enter practice. Pathology is by no means a completed science; so that journal writers and others are constantly quoting from old text-books, thus perpetuating errors. The volume before us is a standard, up-to-date text-book, valuable alike for students and practitioners. Important facts are given in large type, and the less important or explanatory matter is given in smaller type so as to save space, and also to indicate the essential from the non-essential or as yet not decided upon facts. As the medical college seasons are near at hand it is well worth while for the professors to decide on their text-books for the coming sessions, and they could not do better than either to adopt this as their class text-book, or recommend it for consultation purposes.

Medical Electricity and Roentgen Rays, with Chapters on Phototherapy and Radium. By SINCLAIR TOUSEY, A. M., M. D., Consulting Surgeon to St. Bartholomew's Clinic, New York City. Containing 750 practical illustrations—16 in colors. Philadelphia and London. W. B. Saunders Co. 1910. 8vo. 1,116 pages. Cloth, $7 net; half Morocco, $8.50 net.

This is a book that, in the present stage of medical electricity and Rœntgen rays, is much needed and must have a large demand. It starts off with the elementary principles, the mechanism and means of working the apparatus to get their best effects. It explains in plain, simple language, as far as possible, what is known of the forces treated of and details the technic of uses of the instruments, what to look for and how to find them. Section by sec-

tion the work progresses to the clinical aspects—showing the possibilities and as yet impossibilities of the scope of medical electricity, Roentgen rays, phototherapy and radium—recognizing throughout that very much is yet to be learned. The completeness of details as brought out in the book—descriptive and clinical—is indicated by the fact that it requires about 110 pages of triple column index to give the contents in a form for ready reference. It is a fine book for student, general practitioner and especially for the specialist.

Editorial.

Permanent Home for Medical Society of Virginia.

During the 1909 session this society appointed a committee (Drs. Wm. F. Drewry, Petersburg; Kirkland Ruffin, Norfolk, and R. H. Whitehead, University of Virginia) to look into the expediency of establishing a permanent home for its sessions. The Richmond Academy of Medicine and Surgery having the same subject under consideration as to the interests of that body, also appointed a committee to act in co-operation with that of the State Society. It was thought probable that the Dental as also the Pharmaceutical Societies—State and local—could be persuaded to co-operate in the movement.

A corporation has recently been organized in this city to erect a four or five stories fireproof building to be devoted entirely to professional offices, etc. The structure will be an imposing one with elevators, and all modern conveniences, suited to the general purposes named. This building corporation, having heard of the action of the Medical Society of Virginia and of the Richmond Academy of Medicine and Surgery, requested a joint conference with the committees of the two bodies. This conference was held June 21, 1910, at which plans of the building were shown, and the corporation showed every willingness to make any modification in the plans that would better conform to the wishes of the committees. The corporation suggested an annual rental of about 6 per cent. of costs for the halls, etc., provided the contracts extended over a term of years—aggregating from $1,000 to $1,200 annual rental. The corporation wishes to begin building at once, and have everything in readiness early in 1911. Besides a hall large enough for the annual sessions of the Medical Society of Virginia, two or three adjacent rooms of sufficient size would be added suited to the purposes of a reading or library room and rooms for exhibition of legitimate pharmaceutical and surgical displays. In addition, a sitting room would be provided where visiting doctors could always find a welcome, and conveniences for letter writing, consulting periodicals or books, at any time during the year.

To say the least, the propositions were very liberal and very enticing. But the conference being entirely an informal one, did not feel empowered to act until after due reports to the respective bodies which the committees represented. Hence, we are afraid that the general plan proposed of a "permanent joint home" for the Medical Society of Virginia and for the Richmond Academy of Medicine and Surgery will not be found feasible.

In the first place, the Richmond Academy of Medicine and Surgery meets only two nights of each month at an annual sub-rental of about $100. The Medical Society of Virginia holds only annual sessions; and in cities large enough for some of the hotels to grant the use of halls sufficient—provided such hotels are advertised in the program as "Headquarters"—which advertisement amply repays them.

In the next place, the annual income to these societies from dues by members would scarcely warrant the incurring of an additional expense. An effort was made a year or two ago to increase the annual fees of the Richmond Academy to $5 per member; but experience soon proved that it had to drop back to $4, and the aggregate collections are just about enough to keep that body out of debt. Annual membership fee in the Medical Society of Virginia is only $2, which affords an income of about $2,500 a year—as honorary members, members over 70 years of age, etc., are exempt from assessment. The annual expenses of this body leave but a small balance at the end of each fiscal year.

Even this annual tax of $2 per member is considered a burden by many—as shown by the annually long list of members "dropped as delinquents." Of course, the majority of members can easily pay $3 a year, and a num-

ber even $5. But any attempt at increase of annual dues would cause the dropping off in membership to a lamentable extent, and a decrease in income.

Furthermore, it is doubtful that the doctors of the State visiting the city for one or another reason would find opportunity to avail themselves of the privileges of such a hall sufficiently to be compensative. Such visiting doctors would most probably prefer the clinics at the two colleges and at the several hospitals of the city.

The advantages to the city of Richemond would be so decidedly local that it would be difficult to persuade doctors in remote counties that selfish interests had not controlled Richmond members of the State Society to establish such a home and yet call on outsiders to help support the measure.

Virginia—over 400 miles East and West; and over 250 miles North and South—has no well defined geographical or railroad center. It is easy, for the most part, for Virginians to reach Washington city as Richmond; and in the former city well catalogued medical governmental libraries are easily accessible.

Maryland has been referred to as financially assisting the medical building at Baltimore; but from experiences of the past ten years or more in trying to get the Virginia Legislature even to relieve doctors of State license taxes, it will be many years before State help in Virginia can be hoped for a medical building in Richmond.

Under all the circumstances, we think the conference of doctors, held at Richmond, June 21st, acted wisely in simply hearing reports, making inquiries, and deciding on presenting the facts to their respective organizations, without special recommendations.

Medical Society of Virginia.

Under the chairmanship of Dr. W. L. Harris, 153 Granby street, Norfolk, the local Committee of Arrangements for the forty-first annual session of the Medical Society of Virginia is making fine progress, looking to the success of the meeting to be held at that city October 25-28, 1910. Ample hall accommodations have been provided in the Monticello Hotel, which hotel will be known as "Headquarters" for the session. Elevators transfer passengers from the ground floor to the Convention Hall. The hotel is conducted on the European plan, at room rates of $1 a day upwards, according to location and size of room.

Since his recovery from illness last winter, the President, Dr. E. T. Brady, of Abingdon, has not been inactive. Under the new law of the Society, no one except the President has authority to invite visitors to read papers unless they be fraternal delegates from other State medical organizations. He has secured the promises of Dr. L. F. Barker, 1035 Calvert street, Baltimore, Md., who will present a paper on the "Treatment of Some Forms of Failing Heart," and Dr. C. H. Lavinder, of the United States Marine Hospital Service, Washington, D. C., who will present a paper on "Pellagra."

According to custom of rotation, this year papers on surgical subjects will have precedence; then medicine, and then specialties. The titles of a number of papers for the session are already in hand. The official postal request for titles of papers will not be issued to each member until about August 25th, when those contemplating presenting papers should promptly forward the titles to the Secretary of the society.

Applications for membership in the society are coming in nicely; and as soon as the report of the recently adjourned session of the Medical Examining Board is in hand, it is expected that there will be many more.

Vacations of Doctors.

Wherever we write about this season of the year we hear of city doctors especially being "off on their vacations." Like school teachers, after the routine of nine or more months of the year, doctors need such holidays also. In the autumn they return to their daily duties, and scarcely an hour is left them until the next summer for rest from their toils. It is true, as a rule, that enough practitioners remain at home to attend to the work left behind; for at about the same time that doctors take their summer outings the great bulk of the well-to-do patrons are also away from their homes.

As these parties during the same time are away on trips at the springs, at various seaside and mountain resorts, or else are rusticating in various homes in the country, the country doctors are then usually most busy. The neighborhood doctor has to be called in to see wives and the children. Such a season be-

comes his harvest months for then he is dealing with patients accustomed to city doctors' charges. It is useless for the patient to talk about returning home to the family physician, for he is probably away.

The country doctor, however, has his time in the fall and winter, when these visitors have returned to their city homes, and when the tide of practice has resumed its normal as to location. Then it is that he needs recreation, and should take it. His vacations, it may be true, are of shorter duration, but he seeks the cities for pleasure and profit. Relieved of responsibility of being in charge of patients, he finds recreation in visiting hospitals and observing the practice of others. Like a sponge, he absorbs without effort. He attends medical societies, meets old friends, and enjoys hospitalities that are pleasurable. He listens with interest to papers read by those who have well studied their subjects, and his participation in the discussions are from the practical standpoint—brought out by recollections of experiences and observations. Such discussions by him are as pastime—as if they were social conversations—but are extremely useful.

Anti-Vivisection Societies.

The Medical Society of the State of New York has issued a letter calling attention to bills which the Anti-vivisection Societies have had introduced before the New York Legislature. If enacted into laws, these bills would seriously interfere with scientific teaching and experimental research work as taught in our medical colleges, and throw barriers in the way of attaining scientific knowledge necessary for the prevention and care of disease.

It would seem that doctors should awake to the fact as soon as possible of educating members of the Anti-vivisection Societies, as to methods used in these experiments, so that they might be brought to enderstand that subjects are anesthetized, etc., so as not to have to undergo unnecessary pain, and that information gained is with a view to benefiting mankind in general. The exhibitions given by these societies in diffeernt parts of the country would indicate that their members are not sufficiently enlightened. Of course, nothing warrants useless, painful vivisections.

University College of Medicine, Richmond.

Unusual interest has been manifested on the part of the *business* men of Richmond, looking to the re-establishing of the University College of Medicine, Richmond, and they have subscribed liberally to the rebuilding fund.

During the process of erection of the University College building, what is known as the Milhiser warerooms immediately in the rear of the college are being rearranged and renovated for temporary quarters. This "Milhiser building" will be connected by covered hallways with the adjoining Virginia Hospital, where there is always ample clinical material. Laboratories for X-ray work, chemical, physiological and pathological examinations will be provided for. Of course, the building of the college itself, in accordance with the well drawn plans of the architects will be in progress at the same time.

In keeping with the wish of some of the faculty, a meeting of the trustees will soon be held in order that some changes may be made, new chairs established or vacancies filled. Everything will be in readiness for the proper opening of the session in September, 1910, and even better equipped than ever before for the proper teaching of medicine, dentistry and pharmacy.

The Southside Virginia Medical Association

Held its twenty-ninth session in Petersburg, Va., June the twenty-eighth, with its usual good attendance. After the address by the President, Dr. R. L. Raiford, of Sedley, a number of other interesting papers were presented by doctors from the Southside counties, Petersburg, Richmond and Norfolk. Upon adjournment of the night session, which was open to the public, the members were tendered a "smoker" by members of the Petersburg Medical Faculty.

The National Association for the Study and Prevention of Tuberculosis.

In addition to the investigations made by this association during the past year, as to cost of maintaining tuberculosis sanatoria, the time allotted to the treatment of patitnts in various localities, the rate of mortality from tuberculosis in the larger American cities etc., they

have now established a bureau to collect plans for tubeculosis institutions. This information will be available to those contemplating the erection of tuberculosis sanatoria and hospitals.

Anomalous Lynchburg, Va., Health Board.

Ward politics, characteristic of other days, have crept into the action of the Lynchburg, Va., City Council. In joint session last month, under a new ordinance, it elected a Board of Health. It is scarcely possible to medicine upon it. Mosby G. Perrow, Ph. D., was chosen health officer of that city, and three citizens—not one of whom is a doctor—as the Board of Healthf. It is scarcely possible to conceive of such a board in a progressive community where the special services of the best of available sanitary physicians is not particularly required for effective work. We learn that the action of the City Council was adverse to the advice of a number of the medical practitioners of the city. As we understand the newspaper report of the matter, however, the selection of the present Health Board of Lynchburg is for a term of only a few months—until about January 1, 1911. Then a new board will be chosen when we trust the properly combined influences of the medical profession of that city will gain the proper ascendency. It is all right to have as a member of the board some one versed in bacterial and laboratory work; but the health officer himself should be a worthy practitioner who well understands the diagnosis of the usual infectious diseases, their causation, prevention, and such matters. The medical profession of Lynchburg, aided by the organized Lynchburg Academy of Medicine should be strong enough in its influences to persuade its City Council of the error committed, and to correct it as soon as practicable.

Tuberculosis Camp, Richmond, Va.

About a year ago, a plan was undertaken in Richmond, to raise funds by voluntary contributions for a tuberculosis camp. About 25 acres of land, in an ideal location, were donated by the city, about three miles out. It is hoped that the small amount necessary for finishing the work may be obtained promptly, so that the camp map be opened within six weeks.

Loving Cup to Dr. J. Allison Hodges.

In slight recognition of valuable services rendered by Dr. J. Allison Hodges in the campaign for securing subscriptions for rebuilding of the University College of Medicine, Richmond, the faculty and friends of the university, at a recent meeting, presented him with a loving cup. The untiring energy and zeal displayed by Dr. Hodges in this campaign, richly entitled him to such remembrance from his friends.

Officers of the Southwest Virginia Medical Society

Elected at its meeting, June 28th-29th, for the coming year are: President, Dr. M. L. Dalton, Floyd; Vice-Presidents, Drs. S. W. Dickenson, Marion, and M. G. Robinson, Ivanhoe, and Secretary-Treasurer, Dr. A. B. Greiner, Rural Retreat. Members of the Executive Committee are: Drs. L. G. Pedigo, Roanoke; R. M. Wiley, Salem, and T. K. McKee, Chilhowie.

The Patrick-Henry Medical Society

Will hold its next quarterly meeting at Martinsville, Va., on July 12th, under the presidency of Dr. J. R. Perkins. An interesting programme has been arranged, and a pleasant meeting is anticipated by members who will attend. Dr. J. M. Shackelford, of Martinsville, is secretary.

Obituary Record.

Dr. Charles L. Wingfield,

Of Warren, Va., for many years one of the best known and most popular physicians in Albemarle county, died at his home, June 27th. He reeceived his medical education at the University of Pennsylvania, from which he graduated in 1848, and has been prominently identified with medical circles in his native State for many years. His widow and several sons and daughters survive him.

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Original Communications.

RECTAL CARCINOMA—DIGITAL EXAMINATION, IMPORTANCE OF.*

By GASTON B. JUSTICE, M. D., Marion, N. C.

The object of this paper is not to add anything to what has already been written on carcinoma of the rectum, but to point out the fact that delayed finding of this condition is due to failure to make a thorough examination.

I have been impressed with the frequency in the past year with which I have met with carcinoma of the rectum; and, with the exception of one case they were seen too late for surgical intervention, having been treated for almost every conceivable disease of the alimentary canal, and not because of the lack of training or ability to recognize the conditions on the part of the attending physician, but on account of failure to make a thorough examinationtion. In this hurry and bustle of to-day we are constantly overlooking the simple and effective means by which most of these conditions may be ascertained. It is not possible for us all to be equipped with the latest apparatus for diagnosis of disease; but it is possible to make a thorough examination in every case—using the methods we have, and especially being satisfied that we have exhausted the direct methods of rectal examination. With the history. digital examinations and examinations with the speculum, this condition can always be revealed, if present.

It is in our hands—the hands of the general practitioner—that lies the hope of relief most of these patients have, and if we fail them, their great suffering and ultimate end is assured.

The failure to inspect and palpate the rectum in any case where the symptoms point to disease of the lower intestines is neglect inexcusable, for there are certain typical signs in carcinoma of the rectum due to the fact that this portion of the bowel is easily accessible to palpation and inspection, so that disease in this region can more easily be detected than would be possible in other portions of the intestines, but it is not the rule for the rectum to have been examined, even when a number of symptoms point directly to disease of this portion of the bowel. When these cases are seen early, complaining of constipation and occasional passing of blood, we briefly examine the anal region and institute treatment for piles, when a careful digital examination would, in all probability, reveal the true condition, and piles prove only a symptom.

In the female it is necessarily more difficult to decide in which part of the pelvis the growth originates, but even then we realize a surgical condition which is infinitely better than overlooking it entirely.

In the vast majority of cases the diagosis can be made with reasonable certainty, even in its incipiency, the diseased portion being felt by the examining finger. We all know that as a routine procedure the rectum should be inspected and a digital examination made. This does not only afford reliable diagnostic information with reference to certain general conditions, as prolapse from pertussus, prolonged vomiting and other causes of rectal tenesmus, but in addition may confirm the diagnosis in various local lesions, which are usually first found by the surgeon after the abdomen is opened, as impacted feces, impacted gallstones, foreign bodies, the tumor of appendicitis, tumor of intussusception, bleeding polypus, etc. Some of these conditions could bear the delay caused by the neglect to examine, but with carcinoma every day's delay in finding the condition necessarily lessens the chance

*Read before the session of the Medical Society of North Carolina, at Wrightsville Beach, June 21-23, 1910.

of radical cure and adds to the gravity of the operation. Cancer of the intestines higher up than the rectum would be more difficult of diagnosis, as we would only be guided by the age, cachexia, the possible detection of a tumor felt through the abdominal wall and usually signs of chronic obstruction and the progressive downward course of the disease, but the diagnosis of a cancer of the rectum, though at times mistaken for chronic dysentery, because of pain, tenesmus and voiding of feted mucus and bloody stools, can be revealed by the digital examination as an ulcerative mass or an annular infiltration. This condition, when recognized and operated upon early, according to Tuttle and Finet's statistics, is very encouraging, and I think it is conceded that cancer in this region, recognized early and completely operated upon, is less apt to return in situ or by metastasis than possibly in any other part of the anatomy; but delayed operation, with the possibility of extending life but a few weeks or months at best, carries with it so much pain, inconvenience, etc., that choosing between these results and death, one would infinitely prefer the latter.

SOME PRACTICAL EYE AND EAR POINTS OF INTEREST TO THE PRACTITIONER.*

By CLARENCE PORTER JONES, M. D., Newport News, Va.

Councillor, First District, Medical Society of Virginia.

(a) *Differential diagnosis between furunculosis in the external auditory canal and acute otitis media.*—Each malady has several symptoms in common—violent pain in the head, ear, throat and teeth; swelling at one or more points in the canal wall; when occluding same, impairment of hearing.

The important differential points are pain increased on traction and rotation of the auricle; also on chewing, and yawning—in otitis media. There is no increase of pain in furunculosis. In otitis media the pain is more severe on pressure on the tragus and around the angle of the jaw. The drumhead is red and bulging at its superior posterior quadrant, as a rule. In furunculosis there is no change whatever in the drum. In otitis media, there may be swelling in the canal wall, at its posterior superior portion, in the deeper or osseous region, is reflex in character, due to pus under pressure within the mastoid antrum, and always calls for prompt operative interference. Swelling is the rule in furunculosis, limited to the outer or cartilaginous portion, and usually on the inferior wall.

(b) *The prevention of serious ear disease.*—The mastoid antrum, or we will say the mastoid bone, stands in definite relation to the middle ear cavity, the cerebrum, cerebellum and intra-cranial sinuses—its lining membrane being continuous with that of the middle ear. For practical purposes all the purulent diseases of the mastoid take their origin in diseased conditions in the naso-pharynx, whose mucous membrane passes along the Eustachian tube into the atrium of the middle ear, thence to the attic, thence to the mastoid antrum, which stands in direct connection with its children of a later hour, the mastoid cells.

The infectious material from the naso-pharynx having once reached the middle ear attic, produces there inflammatory conditions, the outcome of which no man can tell until the patient is well. The middle ear attic and mastoid antrum are two adjoining chambers with a narrow passageway, the aditus, in reality making them one cavity. In the attic we find the head of the malleus, the body of the incus and their suspensory ligaments wrapped in a continuous sheet, the mucous membrane. The purulent infection having once found its way into the folds of the sheet is provided in its rapid increase with most insufficient drainways; hence it comes that the most excruciating form of earache with which we are acquainted has its seat here.

The natural outlet for this pus is by a rupture of Shrapnell's membrane, the uppermost and thinnest portion of the drum membrane. Unfortunately in most cases this membrane does not yield rapidly enough, and the pus then attempts to separate the periosteum of the adjacent portion of the external auditory canal, through which it may eventually find an exit by a fistulous mouth some distance from the drumhead. While this is going on some of the pus, as well as the inflammatory process has extended into the attic's sister chamber, the antrum. If the drainage remains imperfect, or the exit be too long delayed, this inflammation in the antrum involves of necessity the cells

*Read before the Northampton County Medical Society, Cape Charles, Va., July 6, 1910.

of the mastoid process. These cells may be likened to a number of various sized minute eggs, some large, some small, all opening into the adjacent eggs, and the uppermost into the antrum. Should the infectious material thus find its way into one or more of these cells, and by its virulence overcome the resisting power of the cell walls, we have first empyema of the mastoid, later ostitis. The former process may get well if it be possible for the pus to drain away through the antrum, aditus, attic and hole in the drum membrane. The latter process—that is, ostitis—rarely disappears unless it has the assistance of the surgeon's chisel and spoon.

On the contrary, partly by a process of minute reinfections, partly as a result of the decomposition of the pus already retained, the adjacent structure succumbs to the advancing inflammation. At times this inflammatory process works its way through the external table of the mastoid process, giving rise to the well-known infiltration abscess beneath the periosteum over the mastoid process; at times it bursts the inner aspect of the mastoid tip forming abscess and its sequelæ in the deep structures of the neck.

At other times it softens and eats away the bone lying about the sigmoid sinus, whose wall, unless more or less speedy relief comes, softens, resulting in sinus thrombosis, with its host of horrid progeny. It may also soften the tegmen antri, or roof of the antrum, giving rise to extra-dural abscess or begets cerebral abscess or meningitis.

Contemplating for an instant this picture, we see how plainly it is our duty in the first place to prevent these results; in the second place, to remove them as soon as we have discovered their existence. In the large proportion of cases we can prevent mastoid disease by an early free incision of the drum membrane, including always Shrapnell's membrane. We should not wait for a bulging of the drum membrane ere this is done.

(c) *A simple treatment for running ears.*—The treatment here to be outlined applies also to your case of acute otitis media after you have lanced the drumhead. Many times you are called to treat simply a running ear, there being few symptoms other than deficient hearing on the affected side and a foul discharge—the acute symptoms having subsided some days, possibly weeks, ago upon rupture of the drum. It should be borne in mind that in every case of middle ear inflammation of such severity as to cause rupture of the drum from pressure the pus has already invaded and filled the antrum. The aditus, or journey from the middle ear to the antrum, is a narrow canal; its lining membrane swells, causing further constriction. Nature has made good work in the matter of a very tough membrane lining the walls of the antrum. Therefore, it is pus under pressure in the antrum which breaks down this membrane. This pressure, due to cut off drainage, interferes with the nutrition of the antrum wall. Therefore, the cleansing of the middle ear should have an additional feature—that of opening the constricted, or possibly occluded journey to the antrum.

The first thing to do upon seeing your running-ear patient is to see that the hole in the ear drum is of sufficient size to allow the passage of a grain of wheat through endwise. If the opening is not as large as this it should be slit a little larger in the posterior direction, using a thin blade knife.

The only apparatus necessary is a straight tipped medicine dropper and a whiskey glass. Both should be made sterile by boiling. The cleansing solution is one part of adrenalin chloride to four parts of saturated solution boric acid. About two drams of this solution should be poured into the whiskey glass and warmed. Have the patient turn his head to the opposite side, fill the ear with the solution by a succession of rapid compressions and relaxations of the bulb of the dropper, the fluid running up and down the barrel. Then let the patient lower his head to drain out the debris. Now wipe out the ear carefully with a cotton-wound probe and fill to nearly full with bovinine; now put in a small pledget of absorbent cotton. After one hour pull out the cotton pledget and repeat the whole process, unless the case is mild; then put in a pledget of fresh cotton and wait till the cleansing time, which will be usually not less seldom than three hours.

If the case is severe—*i. e.*, some remaining pain about the ear, occasionally slight fever—this cleansing should be done every hour. It should be done twice a day in the mildest case.

Any case failing to yield in a month with this treatment has an infected mastoid and will not get well except by the aid of the surgeon's chisel.

The use of opiates and cold applications in these cases is dangerous, as they mask the symptoms.

(d) *Obstinate conjunctivitis.*—Any case of conjunctivitis which resists the ordinary treatment—*i. e.,* boric acid solution, the zinc salts, etc.—for a week has, as a rule, some underlying cause. If the pain is slight, more a congested than a "sick" eye, it is usually a refractive error which is the predisposing cause. If the eye is painful and tender to the touch there is deep-seated inflammation of the ball or a corneal ulcer.

Of course, in deep-seated inflammations which you will most likely see is iritis, the treatment is, as you know, most important. A vital point here is to be able to diagnose this from glaucoma. We should remember that in iritis the pupil is small, patient usually under 45, tension about normal, anterior chamber normal in depth, cornea sensitive to touch. In glaucoma, pupil is dilated, patient over 45, tension inreased, anterior chamber shallow and cornea anesthetic.

(e) *Treatment of corneal ulcers.*—Destruction of corneal substance is the essential feature of all forms of suppurative keratitis, leaving an opaque cicatrix, at best on healing, or by perforation involve the whole eyeball, resulting in phthisis bulbi and total loss of vision. An ulcer begins with a focus of infection superficially situated, with ragged edges of a yellow color, being surrounded by a zone of infiltration. Its sides and bottom are covered by a detritus of a pultaceous appearance. Conjunctival congestion, photophobia, lachrymation and pain varying greatly with individual cases is present.

Treatment should be both preventive and therapeutic. Every injury of the cornea should be assumed to be infected. The eye should be promptly irrigated with a saturated solution of boric acid or bichloride of mercury solution 1 to 4.000, and kept as nearly aseptic as is possible to so do by use of a bichloride and salt ointment containing bichloride of mercury one-fifth grain, and sodium chloride one grain to vaseline one ounce. If pain is a factor, add five grains of cocaine, allowing the druggist to use a small quantity of liquid albolene to better enable the cocaine to dissolve. If the injury is twelve hours old and the proper antiseptic precautions have not been taken, touch the wound with tincture of iodine applied by a few shreds of absorbent cotton wound around a small probe or smooth wooden toothpick. All applications to the cornea being painful, a previous application or instillation of cocaine, 6 per cent. solution, should be made.

When the ulcer has declared itself, wash out the debris by forceful syringing with a fine point medicine dropper or with a small curette; then touch with iodine as above directed. If there is no improvement after twenty-four hours, cauterize with carbolic acid after the same manner as the use of the iodine, or use the actual cautery; for the latter Gruening's cautery probe should be employed.

Atropine sulphate 1 per cent. should be instilled every four hours the first day, then twice a day. Hot applications, boric acid, a teaspoonful to a pint of water, as hot as can be borne every hour, bathing the eye for ten minutes at a time, are very beneficial, using a large sterile towel or napkin. A shade or smoked glass should be worn. The cauterization can be repeated in two or three days if necessary. In highly nervous cases rest in bed in a dark room and a nutritious diet are imperative. Pain is relieved by the mercury salt ointment to which cocaine is added, as above referred to; also by codeine per mouth.

(f) *Treatment of nasal hemorrhage.*—Given an ordinary nose bleed the chances are, 10 to 1, the bleeding point is on the cartilaginous septum just within the nostril. By simply looking by aid of reflected, or, in most cases, direct light, the bleeding point may be seen. Should it be a case of intermittent bleeding, and not be active at the time, ascertain the side, rub lightly the surface and the hemorrhage will start up afresh. The case is cured by simply applying a small quantity of nitric acid on a cotton-wound probe just above the bleeding point; wait a few minutes the bleeding stops. This will suffice to cure, unless there be more bleeding points; if so, hunt them out and treat the same way.

(g) *The removal of foreign bodies from the ear.*—On account of the great mental and

physical distress attended the behavior of a person is sometimes remarkable; so much is this that he is in poor condition to render any instrumentation safe except in expert hands.

In all cases syringe with warm water with the affected ear held lowest. If this fails to produce results it is probably due to, first, swelling of the body after introduction, as a pea. bean. grain of corn, etc. In this case should it remain in the ear canal a few days till the patient is in a better attitude physically and mentally, the better. Second, as to the body being a live bug or other insect clinging tightly to the skin of the meatus or drum membrane with its feet or hooklets. In many cases water will not cause it to let go its hold. In such a case fill the ear canal with olive or castor oil and wait ten minutes, when you will find, as a rule, the bug or insect has let go its hold, when it can be syringed out. There are, however, a few insects which will only let go their hold upon the introduction into the canal of equal parts of chloroform and water. In all cases let the use of forceps be the last thing to do unless you are sure of your ground.

118 *Thirty-second Street.*

CROTALIN INJECTIONS THROUGH THE THORACIC WALLS AS A MEANS OF TREATING PULMONARY CAVITIES.

By THOMAS J. MAYS, M. D., Philadelphia, Pa.
Medical Director of Philadelphia Chest and Throat Clinic.

It seems that in the great battle which is being waged for the subjugation of pulmonary consumption by cure, most efforts have been concentrated toward the discovery of agencies which have a remedial influence on early or incipient cases. This has been largely due to the belief that the remedy or agency which effectually benefits the latter class will also have the same effect on advanced and far advanced cases. On the whole, this would be literally true were it possible to fully estimate all the external and internal factors which enter into the process of repair in such instances. For example, it is well known that many incipient cases, if placed under healthful, hygienic residential conditions, recover, so to say, spontaneously. This is well substantiated by the elder Flint, who contributes[1] the histories of forty-four cases of recovery from phthisis, the great majority of which were in the incipient stage of the disease, and in twenty-three, or more than half of which "this favorable termination was in no measure attributable to medicinal treatment." In advanced and far advanced cases these considerations do not obtain to the same extent, for it is well agreed that in most of such instances, and in spite of all other natural influences, the preponderance of the pathologic processes does not work for the restoration, but for the destruction, of life. It cannot, therefore, be maintained that the remedy which is believed to have a curative value in incipient cases will also have the same effect in advanced and far advanced cases; but, on the other hand, it can be truthfully averred that no therapeutic force can ever rise to the dignity of being named a cure for consumption, unless it shows a decided capacity to halt the ravages of this disease in its later stages, and that the remedy that conquers the advanced will inevitably do the same in its early stages.

That crotalin possesses this power to a certain degree, when administered according to the previously prescribed arm and neck methods, even in hopelessly advanced cases, has been shown by the writer in previous communications.[2] It is probably true that when used in this way it did not protract the lives of such patients, yet it was evident that it had a marked ameliorating influence, not only on the physical signs of lung cavities, but in a large measure controlled the symptoms of the disease, and altogether had the happy effect of rendering their ending days more comfortable. Such considerations, coupled with later experiences, inspired the belief that the therapeutic utility of crotalin had not yet fully unfolded itself, and that its scope in this respect might be enlarged if it were injected directly through the thoracic walls into the affected lung area instead of being administered at a point distant from the lungs. That this was not a rash conjecture had already been foreshadowed by the knowledge that the good effects of this agent were more manifest when given into the neck over the vagus than when administered in the arm.

[1] Phthisis, page 274.

[2] "The Therapeutic Action of Rattlesnake Venom in Pulmonary Consumption," etc.; "The Action of Crotalin," *American Journal of Clinical Medicine*, December, 1909; "Crotalin: An Improved Method for Its Administration," *Ibid*, February, 1910.

Notwithstanding these seeming assurances, it became an entirely different practical proposition—in fact, an unexplored field—when it was contemplated to throw this powerful agent into a highly vascular tissue like the lungs. This objection appeared especially formidable in view of the fact that the writer had always taken particular precaution to avoid introducing crotalin directly into the blood channels; and it must, therefore, be confessed that the first venture of injecting it into the pulmonary organs was attended by considerable fear and anxiety in regard to the possible results that might be encountered. This sense of danger was mitigated to some degree, at least, by the assurance that in a lung cavity, in which the first trial was made, the drug comes in contact with a surface that is more or less indurated, bathed in, and accustomed to the influence of acrid exudative material, and is possessed with less vascular activity than normal lung structure. Finally, experience determined that, at least so far as cavities were concerned, this fear was practically groundless, for, beyond the primary temporary local discomfort which it causes in the chest, no other constitutional symptoms developed than those which arise when it is given in the arm, the neck, or in any other part of the body.

Moreover, the injection of pulmonary cavities through the chest walls with other substances than crotalin is by no means an innovation. Dr. Fr. Mosler contributes[3] three cases of apex cavities, two of which he injected with a solution of potassium permanganate. In the other case he introduced a "thick silver drainage tube" through which much purulent fluid escaped. On subsequent hemoptysis he injected through the tube a weak solution of iron perchloride. No untoward results arose from this treatment. Dr. William Pepper also treated[4] three cases, and one of which with positive benefit, by injecting from 4 to 10 minims of diluted Lugol's solution in the proportion of 4 minims to 5j of water. Dr. Hiller injected[5] three cases with 2cc. of a one-tenth per cent. solution of mercury bichloride, but the injection set up violent fits of coughing, which was followed in one case by serious hemoptysis. Some ten years ago the writer injected a lung cavity with a very weak solution of protargol, but abandoned the practice on account of the irritation which it set up in the lung.

Judged by the experience which has been gained from the intra-thoracic injection of agents like iodine, potassium permanganate, mercury sublimate, protargol, etc., into lung cavities the effects of crotalin vary widely. Only when given in too large doses will it bring about the marked pain and irritation in the chest which are characteristic effects of the above named agents even in small doses. The very fact that crotalin, which, to all intents and purposes, is a foreign substance, may be thrown into an extremely sensitive tissue like the lungs without calling forth more of a reaction than a slight temporary cough, or a feeling of soreness, presently to be followed by a sedative action on the essential symptoms of the disease, is good evidence that it is not offensive to the body. Indeed, the most important and interesting part of this whole investigation is the discovery that a powerful poison like crotalin can so adapt itself that it is not only tolerated with seeming kindness when brought in direct contact with the highly irritable lung texture, but so stimulates the local forces of health that they strive to overcome and rectify those of disease.

Its Local Effects.—In the absence of actual demonstration, it is difficult to surmise the nature of the local physical changes which follow the injection of crotalin into lung cavities. If these changes are similar, however, to those which arise when it is injected into the subcutaneous tissue of the arm, they consist of capillary engorgement, œdema and tumefaction. In this connection it may be of interest to remark that in one of the cases, to which the greatest number of injections and also the largest doses had been given, it was found that in the second and third intercostal spaces, where most of the injection were made and through which the needle passed with ease before, the latter now met with a seeming resistance, through which it could hardly be made to penetrate; and after it had been forced through it was held firmly in the puncture and could not be moved from side to side with the facility that it could before. What the nature of this resistance is the writer is unable to say.

3*Berliner Klinische Nochenschoft*, October, 1873.
4*Philadelphia Medical Times*, March. 1874.
5*Verhandlung des II. Congress Zur Wiesbaden*, 1883.

Moreover, in this case, and over the area which offered resistance to the needle, the dull tympanitic percussion pitch of the excavation, which was present at the first examination, seemed to become higher, and at the same time attended by a reduction of its tympanitic quality. Simultaneously, the pectoriloquy, which was very evident at the outset over the whole excavation area, became muffled and less distinct, and in the course of a month was entirely eliminated in areas which had received the largest number of injections.

Doses and Method of Administration.—So far as present experience teaches, the doses of crotalin for intra-thoracic injections varies from 1-800 gr. to 1-200 gr., and for the first few doses it is advisable to use the smaller amount. Begin by dividing a 1-200 gr. tablet into four equal parts; dissolve one part in 5 or 10 minims of distilled water and inject through an intercostal space.

Before the injection is made, it is very important to outline the affected part of the lung and to introduce the needle directly into this area and to throw the injection there. Previous to the puncture the patient must be instructed to take a deep breath and to hold the lung fully expanded until the injection is completed, and for a short time afterwards to take very short and superficial breaths.

In order to be sure of the safe injection site press the left index finger firmly into the middle of the selected intercostal space and make the puncture of the needle gently, though quickly, at the middle point of the finger tip. If this is carefully done there is no danger of striking a rib or a blood vessel. Always map out the dimensions of the heart in order to avoid puncturing this organ. It is well to remember that in left-sided lung cavities of some duration the heart is sometimes forced or drawn towards the left and occupies an abnormal position.

The common hypodermic syringe with an inch and a half or two-inch needle of somewhat larger caliber than the ordinary hypodermic needle answers every practical purpose, except when it is desired to enter a deep cavity or a bronchiectasy. The injections are to be repeated every four or five days, or oftener if necessary. In one case they were given every other day.

To overcome the pain, or the fear of pain, which is occasioned by the injection, the prospective seat of puncture may be cocainized or sprayed with ethyl chloride. It will be found, however, that a needle puncture of the lung will sometimes produce a momentary spasm of the lung, and may produce pain and interfere with the breathing, unless there is complete anesthesia, which is is frequently inadvisable.

Comments on the Effects of Intra-Thoracic Injections of Crotalin.—So far, eight patients with pulmonary cavities have been treated according to the intra-thoracic method for a period of sufficient length to draw some inferences concerning its action on the following symptoms and conditions: Parenthetically, it may be stated that the writer has also employed this method in the treatment of five cases of primary apex infiltration, but has not had sufficient experience to express an opinion concerning its action except that, on the whole, its effects have been beneficial up to the present. So far, about one hundred intra-thoracic injections have been made without a single untoward experience.

Cough and Expectoration.—The influence of the injections on these symptoms, barring the immediate and transient functional disturbance which they sometimes call forth in the lungs, was decided in almost every case. All of the patients but one had been receiving the arm and neck injections for some time, and the disease was either at a standstill or slowly receding. In a like manner the expectoration diminished greatly in quantity and changed from a greenish-gray to a yellow or whitish color. Expectoration of blood, which occurred in several patients before the chest injections were given, was checked and failed to show itself again. The patient who had not been under treatment with crotalin and who coughed very much day and night, slept every night since he received the injections without coughing more than once or twice, and both cough and expectoration have, on the whole, been greatly improved.

Physical Signs.—The changes in this respect were most surprising. A marked improvement in the physical signs of this disease had often been witnessed before when crotalin had been given subcutaneously, but nothing

was seen like the rapid changes that occurred when crotalin was thrown directly into the lung tissue. Thus, an apex full of loud, large cavernous râles, becomes changed in less than three weeks into a condition of dry, creaking sounds, intermingled with small, bubbling râles here and there; or a posterior basic cavity, which is attended by cavernous râles and a high-pitched tubular expiratory sound, is entirely modified under the influence of a few injections, or the moist and crackling râles of an incipient apex infiltration abate under the influence of one or two injections. These changes have been observed in two different patients, and transformations, perhaps equally striking, are witnessed in other patients every day. As to the ultimate meaning of these changes it is too early to say anything more definite at present, except that their indications are good.

Strength and Weight.—The strength improved in all, and in some to a very marked degree. A female, aged 38, with profuse night sweats, pronounced emaciation, much cough and expectoration, great pain in swallowing, unable to talk above a whisper or to leave her bed for three months, and practically in the throes of death, began to improve and sit up in a chair after the second injection, and, although she died in about five weeks, she frequently expressed her thanks for the relief which the injections brought to her painful throat, her cough, night sweats and her general condition.

An old left-sided cavity case, which had been holding its own fairly well under the influence of the arm and neck injections until a few months ago, when the cough and expectoration, both by day and night, grew worse. His appetite failed, vomiting and night sweats supervened; he became weak, tired, sleepless, short of breath and unable to attend to his work.

On the 8th of May, when he weighed 138 pounds, he received an injection of 1-500 gr. of crotalin in outer third of second left intercostal space, where auscultation showed rather large cavernous râles. The injection gave rise to some pain in the region of the left shoulder and some soreness around the seat of injection, which subsided in a short time. The following day he reported that while still feeling weak, "I slept all night without cough or expectoration until morning." Since that time he received ten injections at intervals of three or four days, and in doses varying from 1-400 to 1-250 gr., and is steadily improving. The cavernous râles are replaced mostly by dry, creaking râles. His strength, appetite, cough and expectoration are decidedly better, and he says he is able to work with pleasure. His weight is about the same as it was at the time the intra-thoracic injections were begun. This patient testified that while the first and second injections were somewhat painful, all the subsequent ones became less and less so as their numbers increased. So far, this is the experience of all the patients who have received the injections.

Female, aged 29, came under observation January 24, 1910, with a history of a year's cough, expectoration and occasional hemoptysis. She was then very hoarse, at times aphonic, pain on swallowing, and had pain in the chest and ears, shortness of breath, restless sleep, palpitation of the heart, night sweats and chills and fever. Her bowels and menses were regular, weight 91 pounds, pulse 84, evening temperature 100 2-5 F. There was dullness in upper half of right lung, excavation from supra-clavicular region to third rib, right side, and cavernous râles over dull area. Left lung normal. She was treated for three months with crotalin injections in the neck and arms and improved in weight and general appearance somewhat, although her menses became scant, and at the end of that time failed to appear. She then was given the intra-thoracic injections—altogether nine in number—with the effect of restoring her menstrual function regularly during the last two months and diminishing her cough and expectoration to a marked degree, and of changing the cavity signs to a dry, blowing sound. Her temperature is normal and she weighs 105 pounds.

The case of a colored female, aged 35, who has been a clinic patient for nearly three years, whose case was reported in the author's first paper as No. 1 (see *"Boston Medical and Surgical Journal,"* April 15, 1909), and who had been doing very well under the arm method, recently began to cough more and showed a few moist râles in her cavity, which is located in the left apex. She received four or five

intra-thoracic injections and her cough has practically gone, and she feels very much better. It is quite probable that the good condition of this patient, which has lasted for about two years, and which has enabled her to attend to all her usual work during that time, when taken in connection with the fact that it is exceptional to find a colored subject long survive an attack, crotalin deserves some credit in the maintenance of her health, for all other remedies seemed unavailing until this was resorted to.

Another very far advanced case, a colored male adult, sick seven months, complained of chills, fever, sweats, œdema of lower extremities, diarrhea, loss of appetite and with a dull tympanitic percussion sound extending from left apex to fifth intercostal space, and dulness from that point to base, and posteriorly dulness from apex to base, same side. Large cavernous râles and rhonchi from apex to fifth intercostal space, and moist râles from latter point to base. Pectoriloquy is well defined above fifth inter-space in front. Posteriorly are moist râles extending to about lower third of lung, from which point to base large bubbling râles with prolonged expiration. Few moist râles in upper anterior surface of right lung.

Besides the crotalin injections he received no other medication except some paregoric and tincture of capsicum to quiet his diarrhea when he first came under treatment, and two grains of quinine twice a day thereafter. He lives in a single room on the third floor and there has been no change in his diet, home surroundings, or in any other respect during the observation. Owing to the hopelessness of the condition of this case its betterment and survival are, of course,, mere questions of time, but it is thought worth while to note the changes which took place somewhat in detail.

It may be of interest to call attention to the fact that after the fourth injection had been given the rapid loss of flesh, which had been going on for four weeks, ceased, and turned in the opposite direction. Not only was there present this gain in flesh, but the marked improvement in the cavity signs, constitntes a part of the history of this case.

Additionally, all the patients slept better, breathed more freely, were relieved of their chest pains, ate better, and were altogther much benefited by the injections.

CONCLUSION.

In conclusion, the writer desires to express his gratification at the physiologic toleration of crotalin when it is brought in direct contact with the highly sensitive lung texture, and at the hitherto unknown power through which it apparently antagonizes and checks the local consumptive process.

Additionally, it may be said that while no claim is made that crotalin, in this, its later phase of administration, is to be regarded as a panacea for all consumptive ills, although its effects are clearly superior to the arm method, it is seriously maintained that when its therapeutic adaptability is fully and finally developed, it will bid fair to become a master weapon in the warfare against pulmonary consumption, and as such the above is respectfully submitted.

1829 *Spruce Street.*

CRETINISM, JUVENILE AND ADULT MYXEDEMA; EXOPHTHALMIC AND SIMPLE GOITRE.*

THE IMPORTANCE OF MAKING AN EARLY DIFFERENTIAL DIAGNOSIS—OF EQUAL INTERST TO THE PHYSICIAN AND SURGEON, AND OTHER SPECIALISTS—TREATMENT.

By H. E. JONES, M. D., Roanoke, Va.

These four diseases have their common source from the thyroid gland; therefore they are closely related, but do not resemble each other as is usually the case with twins, triplets or quadruplets, springing from the same parentage. There is as much difference in their appearance as if each possessed a different father—one white, one yellow, one black and one bronze. So it is encumbent upon us to separate and differentiate them, one from another, and study them as a whole; for the reason that they are related by ties of consanguinity, in having one common parent; and also study them separately, for the reason (though springing from the same parent) continuing the analogy, that they are very different in appearance, life, history and behavior.

These diseases are important and interesting to us, both from a practical and scientific point

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of view. They are not only of interest and importance to us, but to their victims and victims' families. Therefore, I come before you with nothing particularly new in regard to them, but to make a few suggestions and give my experience and to have you gentlemen discuss them from every point of view, which will be of more value to you and to me than this paper.

With the absence of the thyroid, or nearly so, to total absence of function, when present, we have a condition known as *infantile cretinism;* with partial loss of function of the gland in children from 3 to 12 years, we have what is known as *juvenile myxœdema;* when the disease appears in adult life, we have what is known as *adult myxœdema;* with excessive function of the gland we have *exophthalmic goitre;* with simple enlargement, we have *simple goitre.*

The severity of the symptoms of these diseases depends upon the degree of disturbance of the natural physiological functions of the gland. The degree of these disturbed functions may be so slight, below or above normal, that it is often the case that the respective diseases are not diagnosed as such, but as some other minor functional disability of no supposed special significance. These are the types—mild—of these different diseases, that it is my desire to especially call your attention to, for the purpose and importance of making an early diagnosis, not only from each other, but from other diseases, functional or pathological, which they may simulate.

There is no difficulty in diagnosing the grosser and typical types of any of them; so I will not especially dwell on them. It is very important, indeed, to the victims of these diseases that they be recognized early, while in the mild stages; so that we can prevent the grosser typical types from developing by administering timely, rational, intelligent and appropriate treatment. These diseases are comparatively rare—juvenile and adult myxœdema and cretinism, more so than exophthalmic and simple goitre.

In a long medical career a physician may not see a case of myxœdema or cretinism, or if he sees a mild case of either, owing to lack of observation and experience, may not recognize them. Simple and exophthalmic goitre are more often met with and a close observer will not have any difficulty in making a diagnosis in the moderately mild and severe types. In the early stages when all of the symptoms are not clear cut, the diagnosis is difficult, indeed.

Cretinism and myxœdema are analogous in that they are due to the same cause—that is, to a complete or partial loss of the function of the gland—the difference in the two depending upon the degree of loss of the function of the thyroid and the age at which it occurs; in fact, cretinism is considered one of the clinical types of myxœdema. The former (cretinism) is confined to infant life. When there is a congenital absence of the gland the infant survives only a few days, weeks or months; when the gland is present and is partially developed, or a normal gland becomes atrophied with almost no function, but still enough for life to continue, the child may survive for several years, but is abnormal.

Growth and mental development are checked; skin is dry and hard, hair thin, face gross and bloated, features distorted, nose flat and thick, eyes puffed, complexion pale, sallow or waxy, limbs short and thick, and undeveloped, muscular weakness and incoordination; owing to deficient mental development there are various types of idiocy and imbecility.

There are cases of normal children, who have reached ages anywhere from 3 to 12 years who develop the disease after an attack of an acute infectious or contagious disease, causing atrophy and partial loss of function of the thyroid, giving rise to juvenile myxœdema. Development is then checked, the appearance gradually becomes cretinoid and if life continues, idiots, imbeciles and dwarfs are developed.

The subjects may reach adult age, but retain in a slight degree the appearance of infancy. In the female the mamma and genitalia remain infantile; in the male the genitalia do not develop, the voice is fine and high pitched, resembling the female voice, face resembles an old woman's—has no beard.

The cases that do not become dwarfs, idiots or imbeciles, develop into that striking and peculiar type of men we sometimes see, whose height is medium to tall, hips broad with large lower limbs, shoulders narrow; head, face and voice of feminine type, genitals partially de-

veloped, or may be infantile—no beard. I have seen such types and examined several.

In juvenile myxœdema—*i. e.,* in all ages above 3 and under 12 years—we have presented, not only defective development, but all of the symptoms of Gull's diseases, myxœdema of adults, which as observed by me in three or four cases is as follows: Broad, coarse features, large mouth, flat nose, blank facial expression, face broad, moon shaped, skin inelastic, thick, pale, dry and rough; hard, firm, subcutaneous fat. Increased bulk of whole body, having a bloated appearance, "resembling Bright's disease, but does not pit on pressure."

There is inco-ordination, defective cerebration, slow muscular action, headache, irritability, suspiciousness, forgetfulness; absent minded to the point of arrested cerebration, with occasional delusions and hallucinations and occasional mania. Gait is slow and heavy. These cases every few weeks have exacerbations of symptoms, giving rise to what the family call "spells" and develop a train of symptoms similar to petit-mal or epilepsy, with spasms, tetanoid contractions apathy and partial coma.

These symptoms, in cases, not observed closely are apt to lead one to make a diagnosis of petit-mal or epilepsy, neurasthenia, hysteria or some other such disease. Such a mistake is a grave one indeed.

In the last few months I have been called several times, in emergency, to see a case that gives a history, symptoms and appearance as described above. To my mind this case has not been correctly diagnosed. The diagnosis by the physician is epilepsy, and he has treated it for that disease and not for juvenile myxœdema. I do not make this statement, intending it to be derogatory—far from it. I have great respect for his ability. I have in the past made a similar mistake in the case of a boy. I did not make a diagnosis of epilepsy, as his symptoms did not become as severe as that. For a long time I did not know positively what the trouble was, but I believe I know what it is at present; the boy is showing the good effects of proper treatment. I mention this to show how easily and often we may make a mistake, to the great detriment of patient in trying to, but not making a correct diagnosis in these cases; and to put us on our guard and make us more careful and painstaking in getting history, observing all the symptoms and making more thorough physical examinations, for the one single purpose of making a correct diagnosis, so that they can receive proper treatment in time to prevent the terrible consequences of the disease.

Some of these mild cases have fair intelligence and are capable of receiving a primary education. They are fairly active and bright most of the time; with a few—except for a period of from one to three days—every few weeks or months they will have exacerbation of symptoms, when most of the grosser symptoms will appear as described above.

I believe there are many mild cases of this disease existing in this community that have not been recognized by parents or physicians. All fat, nervous, backward, inactive, peculiar looking children should be closely watched and thoroughly examined by the family physician from time to time and, if a positive diagnosis cannot be made in a suspected case, they should be treated with thyroids for a few months. If improvement takes place, and the child rapidly approaches the normal condition we can then be certain of a positive diagnosis and will be able to protect and treat the cases as they should be.

In all the diseases resulting from diseases of the thyroid there is one symptom common to all of them—possibly except simple goitre—viz., disturbed and abnormal metabolism. In cretinism, juvenile and adult myxœdema, the action and function of all of the cells and organs of the body are retarded for lack of the normal stimulation—the degree of disturbance and injury to the organism depending upon the amount of the diminished secretion of the gland, and the severity of the type of the disease. In exophthalmic goitre the condition presented is just the opposite; the action and function of all the cells and organs of the body are accelerated by over stimulation until they are above normal. The degree of disturbance and injury to the organism depend upon the amount of the excess of secretion of the gland, and the severity of the type of the disease. In the first named condition there is deficient and scanty secretion of the gland (hypothyroidism); in the second, excessive secretion (hyper-thyroidism). In exophthalmic goitre the gland may, or may not, be enlarged. In the early mild cases all of the gross appearing symptoms are not present; if present, they may be so slight as

to be overlooked. As observed, clinically and from the text, the most marked symptoms of exophthalmic goitre are activity and excitability of the nervous system, slight perspiration, blushing, emaciation of practically all of the tissues, restlessness and tremor, rapid pulse and respiration; occasionally fainting and dyspnea, nausia, vomiting and diarrhea, throbbing of arteries, eyes prominent (late symptom), slight fever, anemia, vaso-motor disturbance, pigmentation of skin, urticaria and pruritis; occasionally bronchitis and slight edema of bronchi, bronchioles and possibly of lungs. Occasionally there are mental depression and irritability, muscular weakness and inco-ordination. A few cases recover.

Simple goitre is due to one of four causes—first, development of new gland tissue; second, increase growth of connective tissue and the development of follicles, filling up of new and old follicles with colloid (jelly-like) material; third, dilatation of blood vessels and congestion; and, fourth, cystic degeneration and enlargement.

A small simple goitre causes, as a rule, no trouble, but is of interest on account of its disfigurement and pressure symptoms, which it may produce with increased growth and also on account of its function, which may become disturbed in such a manner as to produce in children either cretinism, juvenile myxœdema and possibly exophthalmic goitre; in adults it may produce either myxœdema or exophthalmic goitre—the condition depending upon the character of the histologic degenerative changes of the gland.

The differential diagnosis in the diseases of the thyroid from each other and from other diseases which they may resemble, is not difficult in "good illustrated" and typical cases. The milder forms are more difficult to diagnose. They may be due to transient functional inactivity or activity, or to continued functional inactivity or activity. These different functions of the gland producing in the one case periodical or intermittent types of mild and of moderately severe degree, with scarcely any disturbance of the system, during the intermission, that cannot be easily detected, unless studied closely *during* the *exacerbation of symptoms.*

The second case, producing continued types of moderately mild and severe degree, with considerable disturbance in the moderate, and marked disturbance in the severe cases, can be easily detected by any careful observer, and at any time.

The type of cases as described gives rise, first, to individuals in whom the disease has caused very little abnormality, either in the mental status or physical development. In this class of cases there are types of different degree, which may shade into the severer types, which may become permanent and moderately or markedly severe which will gradually produce in the victims considerable abnormality as time advances.

In the second class of cases the severe and marked type gives rise to individuals, in whom the disease has caused marked abnormality, in both mental and physical development. It is in this type of cases that we have the various types of idiocy and imbecility and the varying types of physical development—from dwarfs up to individuals varying in height from medium to tall, but still possessing some of the physical deficiencies of infancy.

Cretinism and juvenile myxœdema are to be differentiated from rickets, rachitic and syphilitic idiots, imbeciles, and petit-mal, epilepsy, hysteria, neurathenia, etc., that may arise from other causes; also from lymphatic disease, scrofula, tubercular hereditary tendency, all of which may predispose to cretinism and juvenile myxœdema.

Myxœdema of adults is to be differentiated from various functional and pathological disabilities, and nervous diseases of brain and cord, which some of the symptoms resemble: also from various types of insanity and Bright's disease, late syphilis (lues), lymphatic disease, tuberculous and scrofulous tendencies. It is highly important that an early diagnosis be made in every case if we desire to prevent the terrible consequences of the disease to the victims.

Exophthalmic goitre is easily distinguished from the other diseases of the thyroid; but in the early stages the disease may be overlooked entirely and diagnosed as some other disease, or diseases, that affect either the digestive nervous or circulatory systems and possibily obscure tuberculosis. Goitrous diseases are more frequently found in those of tubercular hereditary tendency; in fact, this condition predisposes to goitre.

The general practitioner often slips up on

a diagnosis, and no doubt the same is true of the different specialists. The stomach specialist is just as apt to treat the gastro-intestinal disorders, arising from thyroid disease, with as much enthusiasm and persistence as he will the reflex gastro-intestinal disorders arising from appendicitis, cholecystitis, gastric ulcer and degenerative diseases of the cord. The nerve specialist is apt to treat some of the nervous symptoms, for a time, fails to make a diagnosis and cure, then refers the case to some other specialist to get rid of it.

The surgeon may refer them to his interne, to exhaust his laboratory and physical diagnostic skill on, or to some specialist his fancy may select. The eye and ear specialist willl fit glasses and treat symptoms until he is tired of the cases, fails to diagnose the true condition which has given rise to all the trouble. The gynecologist is apt to dilate, curette, and stimulate local development of the genitalia with electricity; when he fails to make a diagnosis and cure, he will refer the case to some one his fancy may select.

I know a case at present who is being treated locally to bring about development and menstruation. The physician has not the least idea of her true condition, which is the cause of her physical deficiency. He had as well try to make a 5-year-old child menstruate by dilatation, electrical stimulation of the uterus and ovaries, for the development in this case is no farther advanced than it is in a 5-year-old.

This girl is in her 18th year, 4 feet 6 inches tall, weight 62 pounds; no development of mamma nor genitals. She has all the symptoms of juvenile myxœdema; her mental and physical developments are those of a child. If she had received a few years back proper treatment her present sad state would have been avoided. She is a good illustration of the results of the fearful mistake of not making an early diagnosis in her case; and of the importance to her and family of an early diagnosis being made so that she could have received proper treatment in the first stages of the disease; with such treatment she would have developed normally and her life would have been bright and hopeful. Her sister informed me that she had been treated by several physicians during her life and that none of them, so far as she or the family knew, knew what was the trouble with the child. She has received no long and continued treatment from any of them.

Treatment.—The text-book tell us that "our art has made no more brilliant advance than in the cure of these disorders, due to disturbed function of the thyroid gland; that we can to-day rescue children otherwise doomed to helpless idiocy; that we can restore to life the hopeless victims of myxœdema, is a triumph of experimental medicine" not surpassed by any other.

We all know from the text, and probably from experience, what the specific remedy for cretinism and myxœdema is. It is the thyroid gland of the sheep, any preparation of it; the desiccated preparation is the one employed more frequently at present. It is specific in its effects and efficacious in most all, if not all, the cases of cretisism, juvenile and adult myxœdema. With most of the cases there are no disagreeable effects. In some cases the effects are unpleasant and full doses will produce a condition similar or analogous to that of exophthalmic goitre. In these cases it is best to get at a suitable amount of the drug by trial, commencing with small doses and gradually increasing it until there are some perceptible effects, but no unpleasant effects. "The results, as a rule, are the most astounding—unparalleled by anything in the whole range of curative measures—within six weeks a poor, feeble-minded, toad-like caricature of humanity may be restored to mental and bodily health."

If so much can be done for these unfortunates in so short a time by the use of this remedy is it not a terrible mistake on the part of the physician not to make a diagnosis, thereby preventing the victims from getting the benefit of early treatment? How fortunate for them if the diagnosis is made early; if so, their immediate and future sad state will be prevented, relieving them of much suffering and their families of needless expense and sad distress.

Let us in the future be more careful and not make an erroneous diagnosis of these diseases—nor of any other diseases, as to that matter, if it is possible with the means and help at hand to prevent it—in all cases that may come under our professional care.

Some of us have observed from the use of thyroid that all the symptoms rapidly improve in cretinism and juvenile and adult myxœdema. The excessive unnatural fat reduces rapidly,

ten to thirty pounds in a few weeks or months; skin becomes natural, moist and thin, instead of dry, harsh and thick; perspiration is natural; urine increases; pulse rate quickens; temperature rises to normal instead of sub-normal; lassitude, apathy and defective cerebration disappear; the patient's whole appearance is changed for the better; the eye becomes bright and the expression more intelligent. Instead of lassitude, apathy and slow mentality, we have energy, activity and physical and mental alertness. The patient becomes happy and hopeful, the family is delighted and will sing your praise for making a diagnosis, and giving the proper treatment with such happy results.

In cretinism the thyroid treatment will have to be kept up as long as the patient lives. In juvenile and adult myxœdema full doses must be continued until cure is complete, when the remedy can be withdrawn or small doses continued indefinitely to prevent relapse and to retain natural metabolism. In these diseases it is necessary to carry out proper diatetic and hygienic measures, as well as symptomatic treatment until specific medication alleviates the symptoms or effects a cure.

In the treatment of exophthalmic goitre the medical remedies are uncertain as to cure, but are of some benefit in controlling disagreeable symptoms. Digitalis to regulate the heart, ergot to contract the vessels and equalize the circulation and lessen the blood supply to the glands; iron to control anemia, atropine internally and locally to diminish the thyroid secretion; small doses of calomel for elimination by bowels and kidneys. Rest in bed is beneficial to the nervous system and controls rapid heart action.

I have had no experience with electricity One case was referred for X-ray treatment; it was not benefited; since successfully operated on and is now well, though I am told that parenchymatous enlargement is benefited by it. Cystic and colloidal goitres are not benefited. Thyroid is contra-indicated; codeine, bromides and trional, are of benefit in controlling nervousness, tremor and wakefulness.

A few cases recover with medical treatment, but require a long time; a few days ago I lost a case—serum and medical treatment failed. I had a case that I treated five or six years and a former physician treated for as long a period; she recovered. I advised operation, but she refused. In these cases as soon as I am certain of the diagnosis I advise an early operation; most of them refuse and suffer for months or years a disagreeable invalidism.

From surgical literature, the greatest relief is found in radical surgical interference at an early date. Excepting one case, which is being treated with it at present, I have had no experience with anti-thyroid serum. From recent literature its value is still in doubt.

Simple goitre should be treated for a period medicinally and with massage and X-ray; if there is no reduction in size, and disfigurement and pressure symptoms are urgent, and degenerative changes result in either beginning myxœdema, or exophthalmic goitre, surgical intervention should be advised and insisted upon.

In the last six months I have treated four cases of simple goitre; one case not benefited. Referred for X-ray treatment; no benefit. Operation recommended; since writing this successfully operated upon. The other three cases have been greatly benefited; in one case neck was reduced from 17 1-2 to 14 1-2 inches; one reduced from the size of a small cocoanut to less than the size of a hen's egg; one reduced from the size of a coffee cup to apparently the normal size. In these three cases all disagreeable symptoms have disappeared. In these cases I used, locally, iodide of mercury, five grains to the ounce of lard, applied once or twice a day, until considerable irritation was produced, when it would be dispensed with for a few days and then resumed as soon as irritation disappeared. This treatment was continued for several months. I also used a portion of the time the corrosive chloride in small doses to correct abnormal metabolism, occasionally leaving off with it and using Donovan's solution and syrup of iodide of iron as tonic, alterative and absorbent. I think these preparations are more effectual in goitre than iodide of potassium or sodium; the treatment was continued for several months. In addition to the reduction of the gland and alleviation of symptoms, all of the cases improved in general health and weight. One case gained twenty-four pounds in four months.

Notwithstanding "our long hours of routine work and the fatigue that reaches down into the depths of being, the slow strain of life itself, the spreading sadness of which many envelop

the years, like summer mists the hills"—I hope in spite of this fatigue we will exert our energy and make ourselves in the future fit and capable to serve humanity, many of whom will turn to us as "messengers of cheer" and relief, or as some "comforter or bright evangel" to relieve their physical and mental ills. If we are prepared and can do this, it will be a satisfaction to us that will "ease the loneliness of the passing days" and assuage the "brooding over the universal sadness" and distress of mankind and make us appreciate the value and charm of life, at least on a few of its bright sides, which we so seldom see.

Though the text-book literature on these diseases is deficient, especially in the description of the early and mild stages, as was brought out above, it is necessary for us to study them clinically and thoroughly master the text-book literature, and be so familiar with them that we may at all times have them in mind and be on the lookout for their presence in the incipient as well as in the mild and last stages, in both children and adults. Diagnosis is the important feature; the treatment is fixed and easily applied by the novice—when the diseases are known. Especially is this the case in cretinism and juvenile and adult myxœdema. Simple and exophthalmic goitre require the attention of the skilled physician and surgeon.

213 *South Jefferson Street.*

TREATMENT OF ENLARGED SENILE AND SPECIFIC, AND ARTERIO-SCLEROSIS BY ELECTRICITY, WITH REPORT OF CASES.*

By J. C. WALTON, M. D., Richmond, Va.
Honorary Fellow of the South Piedmont (Va.) Medical Society.

Trusting that a brief clinical report of some very common conditions that are very refractory to the usual orthodox routine methods of treatment might be of interest to this very progressive body of physicians—especially so, as there are no conditions that cause the family physician more anxiety and worry than enlarged prostate, and arterio-sclerosis, and as these diseases yield promptly and satisfactorily to treatment by physical agents, especally to the judicious employment of electricity, I shall take the liberty of reporting from my case book a few cases illustrating the treatment by the use of the electrical modalities.

Enlarged Prostate, Senile; Case I.—Mr. A., age 79. A very large adenomatous prostate, at times had to use the catheter on account of retention, bladder very irritable with frequent micturition; patient very weak and nervous, there being in addition arterio-sclerosis, accompanied with an old heart lesion.

Treatment.—The static Morton, wave current administered with the Snow, prostatic metallic electrode, daily seances of twenty minutes for several weeks afforded prompt relief and the patient would have only one call during the night to empty the bladder and sometimes would go the entire night without being disturbed; there was also a great improvement in the general health.

Case II.—Mr. H., age 76. I treated this case at "The Mecklenburg," five years ago for an enlarged prostate with cystitis and retention, there being also sepsis with chills and fever. Six treatments with the Snow prostatic electrode gave entire relief for four years when there was a slight return which promptly yielded to the same treatment and his present condition is good.

Case III.—Mr. C., age 30. Denied specific history: prostate much enlarged, tender and indurated; would be up to empty his bladder fifteen times at night and every half hour or oftener during the day. His general health was giving away from the strain and the interference with sleep. Fourteen daily treatments with the Snow, metallic prostatic electrode gave complete relief and the patient was discharged.

Case IV.—Mr. D., age 66. Enlarged prostate of twelve years duration, was advised by several specialists that his only hope was in an operation; this he declined to submit to on account of an old organic heart lesion. Calls to empty the bladder at night were so frequent that his health was becoming affected from loss of sleep. After the third treatment he could pass through the night without being disturbed and he obtained complete and permanent relief.

Case V.—Dr. N., age 73. For the last ten years had been troubled with frequent micturition—getting up fifteen times at night and about every twenty minutes during the day with great tenesmus and straining wth quantities of mucus. There were great bearing down

*Read by invitation before the South Piedmont (Va.) Medical Association, June, 1910.

pains and he frequently could not urinate unless in stool position, and he was in a depressed and weakened condition. Daily prostatic treatment gave prompt and decided relief, and after the thirteenth treatment was able to go through the entire night without emptying his bladder, and returned home after less than three weeks treatment.

Case VI.—Mr. B. Prostate enormously enlarged, and there was constant dribbling of urine, so much so that you could smell the patient all over the office, and my nurses protested against my treating him on account of the other patients. After the sixth prostatic treatment I found that an old umbilical hernia had become suddenly strangulated, and advised him to go from my office to the hospital for surgical treatment which he did, the operation effecting a cure of the hernia. I met him on the street a year later, when he informed me that his health was perfect, and I had much difficulty in convincing him that his surgeon did not remove his prostate at the time of the hernia operation. So you see the surgeon gets the fee and the glory and the poor doctor gets it in the neck.

Case VII.—Dr. J., age 69. Enlarged prostate for fifteen years, never very serious till the last six years; had used the catheter only a few times; hematuria first came on seven years ago. at one time lasting four months. He was up several times during the night and every two or three hours during the day; prostate enlarged and tender and rather inclined to be fibrous; there was a feeling of heaviness and discomfort in the perineal region. Never rode horseback after 50 years of age for this reason. The blood came from his prostate. Complete and entire relief after one month of treatment.

Specific prostatitis with gonorrheal rheumatism of the right knee confining him to the bed, there was also neuritis of the right musculo spiral nerve, the rheumatism and the neuritis were entirely relieved after two weeks' treatment of the infected prostate by means of the high vacuum glass rectal prostatic electrode excited by the Oudin High frequency current; no other treatment was administered, except gradual dilatation of the strictures with steel sounds and their absorption by Galvanism according to the Newman method.

As the prostate gland and the seminal vesicles have been proven to be the breeding places of the gonococci, especially in chronic gonorrhea, and, as Titus has shown, that the high frequency vacuum tube discharges exert a direct bactericidal effect upon deep-seated gonococci—this being due to the nascent nitrous acid and ozone evolved with the actinic discharges which are carried into the tissues to the depth of from two to six mm. by the action of these high potential currents.

The recognition and verification of this method by the genito-urinary specialist would prove a blessing to mankind.

I could extend this report indefinitely, but I must hurry on and speak of the treatment of a disease that gets the majority of mankind after 50 and frequently before 50 years of age—*arterio-sclerosis.*

About four years ago D'Arsonval startled the medical world by his paper on the treatment and cure of arterio-sclerosis by means of the high frequency currents. Since then D'Arsonval's, conclusions have been verified and duplicated by many careful and independent workers all over the civilized world and especially brilliant results have been reported from Paris, London, New York and Boston.

I have been most fortunate in being so situated as not only to observe the work of many noted specialists in this line, but have had a large personal experience including some severe cases where the coronary and the cerebral arteries were involved and I have seen very marked and quick relief from all the distressing symptoms with corresponding improvement in metabolism and the general health.

I will not further trespass upon your valuable time by going into details, but will say with all earnestness in closing that it is my conviction based on actual clinical work that ultimately with further study and the improvement in technique we will have in high frequency currents a remedy that will create as great a revolution in medicine as it has already done commercially in the wireless and the telephone; and with these high potential currents in conjunction with the regulation of the patient's diet and habits this dreadful disease *arterio-sclerosis* will be shorn of of its terrors. Why should we not expect such results from a modality that uniformly reduces tension, increases elimination, regulates metabolism, and improves the general condition through its well known action on the vaso-motor centres?

THE MEDICAL INSPECTION OF SCHOOLS.

By J. G. B. BULLOCH, M. D., Washington, D. C.

While we are paying especial care to commercial enterprises and fixing our attention upon everything relating to the expansion and growth of this country, many appear to be entirely oblivious as to the welfare of humanity from a hygienic standpoint; and though a few are making strenuous exertions to impress upon the minds of our people the necessity to exercise due sanitary precautions, it would seem that all efforts are futile to get the people to realize the imminent danger which surrounds them. It does look as if the only thing which will arouse them from their lethargic condition is to let some fearful catastrophe happen.

We would suppose that some special interest would be taken in regard to the youth of our land—the children who attend school. Though we spend millions on many things, we are too parsimonious to expend a sufficient sum on the schools and their inmates. There should be not only well paid medical examiners, but a corps of trained nurses, in order that children should be not only thoroughly examined at the school, but also, daily visits should be made to each house to see that no child goes to school from an infected locality. All visual and aural peculiarities should be noted and the throat thoroughly examined, and all mental and physical defects carefully looked into.

Of what use is prosperity, if we neglect those who would share it with us? It seems hard that parents should have to mourn the loss of their loved ones through carelessness, when by proper precaution nearly every disease can be eradicated.

Both in Britain and on the Continent great attention is paid to school hygiene. Dr. L. D. Cruickshank, lecturer, Aberdeen Trading Centre, delivered an address on "The Medical Inspection of School Children" to the members of the Aberdeen Branch of the Educational Institute of Scotland in Gordon's College not very long ago, from which we largely quote:

"The causes operating in this country which had brought the question to a practical issue had been the reports of the work in other countries; the work of the Royal Commission on Physical Training which brought to light the great prevalence of physical defects among school children, quite unrecognized by either parent or teacher; the Royal Commission on Physical Degeneration, the Departmental Committee on Physical Exercises, and the Committee on the Feeding and Medical Inspection of School Children. By the passing of the Scotish Education Act last year, the department had the power to make medical inspection obligatory on all Scotish educational authorities.

School Hygiene.—Interest was centering itself so much around the medical inspection of school children that the larger question of school hygiene had been pushed into the background. Medical inspection and school hygiene it must be clearly understood, were not synonomous terms. Medical inspection was only a part, although a very important part, of school hygiene. Although the part apparently held the field today to the exclusion of the whole, it was certain to be followed by a greatly increased interest in school hygiene, and more thorough and scientific application of its principles to their educational methods. Indeed, so great were the possibilities of the future in regard to school hygiene and medical inspection, that the researches carried out by medical men and the bringing into light of the many faults of their present methods, were certain to lead to profound changes in their educational system.

What did school hygiene mean? Where did it start and where did it end? It included medical inspection, the study of physiology and psychology of educational methods (a field as yet practically untouched, and the study of which might be expected to yield a great amount of useful guiding principles), and the investigation of the mental capacity of children and suiting their education to their abilities and needs. Such grouping of children required considerable skill, and could only be done by the medical man. The dull and backward child would in future be required to attend a special lower grade school in which the methods used and subjects taught varied considerably from the ordinary elementary school. The feeble-minded and imbecile must also have special schools suited to their requirements. The condition under which education was carried out certainly demanded the most careful scientific investigation. Health requirements had been sacrificed for the sake of organization and convenience, and the question of school construction was likely to undergo serious changes in the future.

The question of the relative value of the various forms of scientific exercises must be fully studied by the medical officer, and what was probably of more importance, to make certain that the time devoted to these was sufficient, that they occupied suitable places on the time-tables, and that the conditions under which the exercises were carried out were not likely to harm instead of help the children. This was a difficult question to deal with, but it required looking into by medical men. The principles of healthy living must be taught by medical men to teachers and others. Hygiene was a very difficult subject to teach. The spread of all forms of communicable diseases must be more thoroughly prevented, and the sanitation of the buildings must receive a more thorough and constant supervision. This constituted the most important aspect of school hygiene, and it was not difficult to see how the individual teacher would benefit by its development and application to school work. Perhaps they were inclined to think they were making too much of the question of school hygiene, and too little of the medical inspection. To his mind it was impossible to disassociate the two, and one could scarcely conceive of the work of medical inspection being carried out, while all the other factors which influenced the life of the growing child were neglected. The thing was impossible, and they must throw themselves with zest into the work of medical inspection, because they knew it was through the work of the expert medical officer that they might hope for medical improvement in the educational system being brought about. The teacher might hope that what was done to improve would act favorably on him; the conditions under which he worked would be made as healthy as possible. The general health of the teaching staff had to come in for its share of attention by the medical officer. The evils of large classes would, no doubt, receive increased attention, which would insure more regular attendance of scholars and tend to make the work of the teacher healthier and more pleasant.

Medical examination and supervision had to be exercised over all children—not of the weak and ailing only—(1) With the view of adapting and modifying the system of education to the needs and capacities of the child; (2) for securing early detection of unsuspected defects; (3) checking diseases at their onset; and (4) furnishing facts that would guide educational authorities in relation to physical and mental development during school life.

In London they found special schools of all types—open-air schools, physically-defective children schools, blind children schools, etc.—any amount of medical inspection and supervision at schools failed unless some control could be exercised over the personal and home life of the child. In some English centres much good work had been done by nurses in this way. The nurses combined the duties of school nurses and health visitors, and in that way were able to follow the cases to their homes, and, by encouragement and personal influence, helped to alleviate or remedy the defective condition. The teaching of hygienic habits in school also helped.

Now that we see our backwardness in regard to those we love, can we not pause and reflect ere it be too late? Shall we wait until the plague, cholera or some fearful disease devastates our land? Shall we behold our children dying before our eyes and see distress on every hand? Can not we rouse ourselves and determine to have pure food, pure air, water and milk? Efforts are being made to study many diseases now new to us, and to eliminate them. We already know the fearful ravages caused by tuberculosis, typhoid fever, and many other diseases. It should be our duty to see that the poor are properly fed, housed and taken care of, and especially that the children should be brought up strong in mind, and body. Can we not rouse ourselves and have a pure-minded, moral, strong and healthful race? Or are we to behold our children gradually become delicate, weak, and debilitated? Let us rouse ourselves and have medical inspectors and nurses in our schools, who shall teach the girls and boys of tender age how to develop morally, physically and mentally, and let us try to raise a race of beings who will go forward and onward into the ages pure in mind, body, and manly vigor.

2122 *P Street, N. W.*

REFRACTION BY THE GENERAL PRACTITIONER.*

By M. L. DALTON, M. D., Floyd, Va.
President Southwest Virginia Medical Society.

The public has long suffered from the itinerant or traveling spectacle peddler, who advertises in the local paper as "Dr. Soakum, the

*Read before the Southwest Virginia Medical Society, Wytheville, Va., June 28-29, 1910.

great eye specialist," late of New York, but now of Baltimore, and will soon be late of your place. He will examine your eyes free, but never fails to find an error; all are fitted with glasses, usually spheres of low power. He gives them a steel frame or to the more fastidious he will give a gold plated. He charges from $5 to $15, but will drop to 50 cents if the victim is persistent enough. He often represents himself to the country people to be some noted occulist that has a reputation in that part of the country, or his partner.

He finds out who the family physician is and tells them that he has his indorsement. This abuse can only be stopped by the family physician, learning the work and doing it himself. There are not enough medical men that make this a specialty to adequately meet the demand. This the home doctor can readily do by taking a post graduate course in one of the many good schools in the country that teach this specialty, by supplying himself with some good works on the subject and close application to same.

Some one may say that our friend, the eye specialist, might object, that if this work was done by the general practitioner, it would make his business unprofitable, and that we often need his help; but no, it will only add to his income, for since I have been doing this work I have sent five times the amount of work to the specialist as before. Now that the people know that I do this work and come to me, I see more cases than before and if it is something that I do not care to treat I at once refer the patients to the city specialist while before they would suffer on and wait for a more convenient time to go to the city, which involves a railroad trip, much loss of time; consequently they would never go but would be duped by the before mentioned quack, get no relief, lose confidence in the whole business and suffer on in silence, many times to total blindness, without again seeking relief.

Have you ever been guilty of referring your refraction cases to a non-medical man, an optician? Can the non-medical man do good work? No, never. Because there are so many diseases that influence the eye and have bearing on these cases that it is impossible.

Can the general practitioner do this work? Yes, he can do this work and do good work if he will properly equip himself and learn the principles of refraction. It is a mathematical proposition that you can not fail to work if you understand the principles and use care in their application. Does it pay? Yes, it pays better than most other office work; and besides it always should be considered cash business and if you do good work people do not mind paying you for it and paying well. Besides it serves to establish confidence between the doctor and patient that often ripens into lasting professional relationship.

At the last meeting, I believe, of the American Medical Association a committee was appointed by the Ophthalmological section to promote a working knowledge of refraction among the family physicians. It was deemed advisable to instruct the various State boards to require it for license and that it should hereafter form a part of the college curriculum. Michigan has already made the start and will doubtless be followed by many others. Therefore, there is no need of the family physician surrendering this profitable class of work to the specialist or future graduate. Unfortunately the specialty of diseases of the eye has drawn away with it the more simple work of refraction, but there is no need for this to be so, but commence now and reclaim it for the general practitioner.

References: *Jour. A. M. A.; Med. Summary, Phil.; Med. Brief.*

Analyses, Selections, Etc.

Intrathoracic Goiter With Report of Cases.

In a paper read before the Western Surgical and Gynecological Association, at Omaha, during December, 1909, Dr. C. H. Mayo, of Rochester, Minn., said that transposition of the thymus and lower poles of the thyroid when forming, possibly acts as one of the causes of intrathoracic or substernal goiter.

These growths usually consist of diffuse colloid or encapsulated adenoma, and when they are completely detached from the thyroid they are aberrant or wanderisg.

Most of the symptoms occur from pressure upon the circulation, the trachea, nerves, or the esophagus.

These tumors are usually associated with an ordinary goiter, and probably one-half of them are discovered through complications arising during a thyroidectomy.

As they are often enucleated with great difficulty their removal may be followed by severe hemorrhage.

Intrathoracic pressure obliterates the space, therefore, drainage should be brief.

Twelve cases were reported—six of diffuse adenoma and six of encapsulated, with one death from tracheal collapse due to a hypertrophied thymus of 56 grams in a patient with severe hyperthyroidism.

The Diagnosis of Hyperthyroidism or Exophthalmic Goiter.

The above was the subject of a paper read by Dr. C. H. Mayo, of Rochester, Minn., before the Southern Surgical and Gynecological Association, at Hot Springs, Va., December, 1909. The author referred to the fact that a continued effort has been maintained to consider hyperthyroidism a finished product, to be diagnosed as such only when within the narrow limits of the imperfect descriptions of the few cases described by Parry, Graves and Basedow, nearly a century ago.

It was not considered that the thyroid played a more important part than the heart or nervous system. Many marked cases failed in some particular and were classed as fruste or psuedo until the lacking symptoms appeared.

There is a present tendency to drop some of the old classifications and acknowledge that there are various stages, acute, chronic, mild, severe and irregular forms based upon an increase, probably, with some change of secretion and its delivery.

The laboratory findings should show an increase in parenchyma; (a) more cells in the alveoli; (b) more alveoli; (c) papillomatous increase of cells in existing colloid goiter. These changes may be general or in scattered areas.

Terminal degeneration of essential organs follows degeneration of the gland in the advanced cases. In this stage the patient may be improved and the disease checked, but not cured by operation.

Forms of myxedema are not uncommon in patients who have survived the hyperthyroidism until degeneration destroyed the major portion of the gland.

Eye symptoms and heart signs with tremor must be differentiated from chronic Bright's disease and from myocardial changes.

Leukemia of the neutrophilic polymorphoneuclears and the percentage and absolute increase in the lymphocytes, should be looked for as diagnostic laboratory aid of some importance.

An early diagnosis has become more important since surgery invaded this field than when it was purely medical, in order that a prognosis of the probable result of an operation can be given. In some cases this may mean before eye changes appear, and in others, before the goiter becomes a prominent feature.

Book Notices.

International Clinics. Vol. II. Twentieth Series. 1910. A quarterly of illustrated clinical lectures and especially prepared original articles on Medicine, Surgery, Treatment, etc. Edited by HENRY W. CATTELL, A. M., M. D., Philadelphia and London. J. B. Lippincott Co. 1910. 8vo. 304 pages. Cloth. Annual subscription, $10.

The general character and value of the "International Clincs" are so well established that it is only necessary to announce the publication of each "quarterly" as it appears. During the year it covers advances in the entire range of medicine surgery and allied sciences. The present volume was issued January, 1910.

Founders' Week Memorial Volume. Edited by FREDERICK P. HENRY, A. M., M. D. Published by City of Philadelphia in Commemoration of the 225th Anniversary of its Founding. Philadelphia. 1909. 8vo. 912 pages. Cloth.

The title of this book shows that it contains an account of the 225 years since the founding of Philadelphia, giving the histories of the principal scientific institutions, medical colleges, hospitals, etc. Illustrations are numerous—showing many of the buildings, industries, photographs of distinguished citizens, many of whom are or were practitioners of medicine of fame.

Books Received.

Mortality Statistics, 1908. Ninth Annual Report. Government Printing Office, Washington.

The Johns Hopkins Hospital Reports. Volume XV. The Johns Hopkins Press, Baltimore.

Medical Education in the United States and

Canada. Bulletin No. 4. The Merrymount Press, Boston.

Transactions of the American Pediatric Society. Volume XXI. E. B. Treat & Co., New York.

Editorial.

Medical Society of Virginia.

The forty-first annual session of this society will be held in the auditorium of Monticello Hotel, Norfolk, Va., October 25-28, 1910. This hotel will be considered as the "headquarters" for the session. During August the preliminary postal card announcement will be issued, calling for titles of papers for the program. A number of members have already promised papers for the occasion. But from this date on so many doctors will be on their summer vacations that we would urge all, as far as practicable, who intend to present communications to promptly forward titles of the same to the Secretary of the society so that they may be in full time for proper assignment by the Committee on Program. Titles of papers received after the issue of the program are relegated to the very last part of the session.

According to custom of rotation, papers on surgical subjects will have first place on the program this year; specialties second and medicine third.

The subject for General Discussion selected is *Arterio-Sclerosis.* Dr. L. T. Royster, Norfolk, will read a paper on its *Etiology and Symptoms;* Dr. Henry F. Marshall, of University, on its *Pathology,* and Dr. William S. Gordon, Richmond, on its *Treatment.*

Dr. William Lett Harris is chairman of the Local Committee of Arrangements, and inquiries about hotel rates, spaces for exhibition of books, surgical instruments, pharmaceuticals and such things may be addressed to him. Norfolk abounds in hotels and comfortable boarding houses at reasonable rates.

A number of important business matters may be brought up for consideration and report by the Executive Council. Among these is the better re-districting of the State by counties instead of the political one into ten districts, as at present. It is the desire of the committee on the subject to so arrange the counties of the same district so as to have better communications by rail or boat or good roads with each other; and thus let the councilors have easier access to members in their respective districts. Another question that may be referred to the Executive Council for consideration and report relates to the better organization of local or county medical societies in affiliation with the Medical Society of Virginia. Still another matter for consideration and report by the Executive Council relates to the raising of annual dues per member from $2 to $3, or more.

At a duly called convention of the members residing in the Eighth Congressional District, held at Manassas, Va., Dr. Samuel W. Maphis, of Warrenton, Va., was nominated as an Executive Councilor to represent that district. The members residing in the Fifth and Seventh Congressional Districts will make nominations to fill vacancies during the Norfolk session. The President, Dr. E. T. Brady, of Abingdon, deems it best also to wait until the Norfolk session for the society to fill the vacancy caused by the death of Dr. R. W. Fry, of Roanoke as one of the councilors from the State at large.

Applications for membership are coming in encouragingly, so that by the time of the session it is expected that about one hundred worthy doctors will be added to the register—if, indeed, there are so many eligible doctors in the State who are not now members. Members everywhere in Virginia are specially requested to urge all worthy doctors, not yet members, to send in their applications, according to forms which will be supplied by the Secretary of the society on request.

University College of Medicine, Richmond.

In answer to inquiries constantly coming in, changes in the large, commodious building adjoining the University College lot, are being rapidly made so as to be in readiness for the opening of the session in September, 1910, thus preventing the interruption of any session since the College was founded in 1893. Of course, the adjoining building will be utilized only temporarily until the college itself can be erected. It is an immense undertaking to erect such an institution from its foundation, so as to be suited to the modern demands of

an up-to-date medical college, with its laboratories, lecture halls and other needed rooms, but through the generosity chiefly of the business men of Richmond, it is expected that enough will be subscribed to meet urgent demands. Committees of the faculty have made several visits of inspection to the more modern medical colleges, North and West, and communicated with the authorities of colleges elsewhere, and have brought back many important ideas to be incorporated in the plans of the architects.

The architects have nearly completed their drawings and are at work on the specifications. In an early issue, on the advertisement page of this college, we hope to present an electroplate of the building as it will appear when completed.

In recognition of the great liberality of business men in contributing so liberally to the fund necessary to rebuild, advantage will be taken of the opportunity at hand to make the new Board of Trustees almost entirely of such parties who have shown interest in medical subjects. There will also be a thorough reorganization of the faculty itself, as some of the professors have indicated their desire to change their positions. Full announcement of all such changes will be made in an early issue.

Too great commendation cannot be made of the Alumni of the University College of Medicine, many of whom have contributed most liberally to the rebuilding fund. And the lovalty of the student body—undergraduates—has been remarkable, in that nearly all have indicated their intention to return, and to persuade friends to come with them next session.

Virginia State Board of Health.

The regular semi-annual meeting of the State Board of Health was held on Wednesday, July 13th, in Richmond. Dr. Rawley W. Martin, of Lynchburg, presided. Dr. T. C. Firebraugh, of Harrisonburg, was recently appointed by the Governor to fill the vacancy caused by the death of Dr. S. P. Latane, of Winchester. Dr. W. M. Smith was elected secretary.

Detailed reports of the various features of the work of the department were made by Commissioner Williams.

The result of the treatment of patients at the Catawba Sanatorium was especially gratifying.

The Bureau of Rural Sanitation was created some months ago, under the special direction of Assistant Commissioner A. W. Freeman. It has charge of the investigation and eradication of typhoid fever and hookworm. Five men are now devoting their time to this branch of the work.

Within the last few months an experienced sanitary engineer, Richard Messer, has been engaged by the department. Since his appointment he has been engaged in putting in the water and sewerage systems at the Catawba Sanatorium. The numerous calls made upon him for advice and consultation demonstrate the interest taken nowadays in the question of disposing of sewage.

Consideration was had in regard to the compensation allowed local boards of health. Figures showing the compensation in the different counties varied most remarkably. It was decided to refer the matter to a committee, with a view to recommending to the counties a uniform scale of salaries and fees.

Twenty-nine rules and regulations were adopted. They are to take effect September 1st, and will be printed and distributed as soon as possible. These regulations are conservative and eminently practical and will be a great help for the guidance of local health officers.

Three hundred medical members of the county boards of health were appointed. With few exceptions the old members were retained.

Machinery is provided for the diagnosis of smallpox. All persons living in the house must be quarantined excepting those who exhibit scars of successful vacination recent enough to be protective in the opinion of the health officer in charge. Those thus protected will be allowed to leave after fumigation of their effects, but they may not return until the quarantine is raised. The time limit of twenty-one days is placd upon infected property. Placards are to be exhibited at doors and gates announcing the existence of the disease.

Rules as to the isolation of cases of scarlet fever and of diphtheria are practically the

same. Patient and nurse are to remain alone in one room and must not be visited excepting by the physician and the health officer. All persons under 15 years of age in the house are to be confined during the period of isolation.

Adults may attend to their regular vocations, but are not to enter places of public meeting, where children are in attendance. Those adults engaged in any industry connected with the preparation or handling of milk or food, or with any factodry, school, office, shop or store where persons under 15 years of age may be employed or congregated, shall not work during the period of isolation.

Placards are also to be posted in these cases, and there is to be thorough disinfection at the end of the period. In cases of diphtheria there shall be no release from isolation until three weeks have elapsed or until a culture shall have been submitted and pronounced free from bacilli by the bacteriologist of the State Board of Health or some bacteriologist approved by the board.

Coming to the sanitation of buildings, the amount of cubic space per pupil and the amount of fresh air to be supplied are to be enforced according to the State law. No floors are to be swept without first having been sprinkled or covered with damp sawdust or damp paper. Furniture and woodwork is to be wiped down with an approved disinfectant solution at least once a month.

Good sanitary drinking water is to be supplied at every school house. Sewerage arrangements are to be kept up to health standards.

Railroad coaches are to be cleaned in the same manner as school houses. Dry dusting with feathers or a dry cloth is forbidden. A vacuum cleaner is recommended wherever possible. Cuspidors are to contain water and must be disinfected at the end of each run. Everything movable must be taken from the car at least once each month and it is then to be thoroughly cleaned, dusted, aired and aired, while the interior is to be fumigated with formaldehyde gas.

The same rules, practically, apply to railway stations, which are to be thoroughly cleaned once a week.

Theatres must be provided with means for maintaining the purity of the atmosphere. All buildings used for public meetings are to be cleaned after each performance. Cuspidors are to be supplied, to contain water.

The regulations as to what constitutes proper disinfection are, of course, technical.

Field Day at Central State Hospital.

Early in July the Central State Hospital, Petersburg, which is in charge of Dr. William F. Drewry, adopted this form of entertainment for its inmates, which was so thoroughly enjoyed, and proved so successful as a means of bringing the unfortunate inmates out of themselves, that it was decided to repeat the entertainments from time to time. The chief credit for training the participants in the sports is due to Dr. Banks, one of the assistants, and it is needless to say that his popularity with the patients is already established.

Many of the more progressive institutions for the insane throughout the country are adopting the various out-of-door amusements as one of the chief forms of treatment.

Maryland Medical College.

A notable feature of this medical college, an advertisement of which appears in this journal, is its co-educational feature—women being admitted on the same terms as men. Also lectures are held at such hours as to enenable students who are endeavoring to work their way through college to have the mornings at their dispesal with a course of lectures in the afternoons and evenings. Dr. W. S. Smith is dean. All departments of medicine are taught in this college by a full corps of professors.

Association of Health Officers of Tidewater Virginia.

Health officers in the Tidewater section of Virginia and United States government health officials stationed in this locality recently formed the above association for the purpose of increasing interest in health matters, and have already held several interesting meetings.

Officers of the association are: Dr. H. R. Dupuy, Norfolk, president; Dr. Vernon Brooks, Portsmouth, vice-president, and Dr. H. R. Drewry, Lambert Point, secretary.

Virginia Doctors Abroad.

Dr. Stuart McGuire, ex-president, and Dr. Edward McGuire, councilor-at-large, Medical

Society of Virginia, both of Richmond, will shortly sail for a pleasure trip abroad.

Dr. Robert S. Bosher, also of Richmond, has already sailed.

Dr. Clarence Porter Jones, councillor for first district, sails August the 20th for Edinburgh for attendance on the Edinburgh Post-Graduate Vacation Course.

All these doctors will return in time to be present at the meeting of the State Medical Society at Norfolk.

Fraternal Delegates,

Appointed at the recent meeting of the North Carolina Medical Society, to the forty-first annual session of the Medical Society of Virginia, Norfolk, Va., October 25-28, are Drs. H. T. Bahnson, Winston-Salem; C. M. Strong, Charlotte, and D. T. Tayloe, Washington, N. C.

Dr. S. T. Earle, of Baltimore, Md., has been appointed as delegate from the Medical and Chirurgical Faculty of Maryland.

The Staff of the William Byrd Hospital,

Richmond, Va., has been reorganized and Dr. J. W. Henson will be in charge of general surgery, Dr. B. W. Rawles of rectal surgery, and Dr. William J. Innes, who recently moved to Richmond from near Brookneal, Campbell County, Va., will be in charge of internal medicine.

Dr. John M. Ropp,

Of Shenandoah, Va., who was seriously ill at a hospital during May, after a month spent on his farm near Abingdon, has entirely recovered, and resumed his work in Page county.

Obituary Record.

Dr. Robert Simmons Powell,

For many years one of the most honored and beloved members of the medical profession, and also well known on account of his prominence in political circles of the State, died at his home, Woodview, Brunswick county, Va., July 11th, in the seventy-sixth year of his age. In the death of Dr. Powell the State loses one of her ablest sons and the medical profession one of its most faithful members, not only as a physician, but also as one always identified with all matters pertaining to its uplift and material good.

After an academic education at local schools and colleges, Dr. Powell entered the University of Virginia as a medical student, from which he graduated in 1857. After a course of training in some of the New York City hospitals, the doctor returned to his native county to take up the practice of his profession, which he continued to the time of his death, winning the confidence and esteem of all with whom he came in contact.

Though Dr. Powell did not desire to become a politician, when the honor was thrust upon him of serving his county in the State Legislature, he did it with the same faithfulness and earnestness which characterized his work in all other departments of life and was among the most active and enthusiastic workers on the doctors' bill for repeal of State license taxes. He was also a member of the Medical Society of Virginia, having joined at Staunton session, 1872; he was elected an honorary member in 1906. His services were always at the command of the profession.

Dr. Powell is survived by his wife and several sons and daughters. The interment was in the family burying ground at Woodview.

Dr. Mihran K. Kassabian,

Renowned as a medical pioneer in the use of the X-rays, author of books on this subject, etc., died in the Jefferson Hospital, Philadelphia, July 12th, as a result of burns received in his investigations, dating from 1902. Dr. Kassabian was an Armenian by birth, but when a young man came to this country and studied medicine at the Medico-Chirurgical College. Since 1902 he had been director of the Rœntgen ray laboratory in the Philadelphia General Hospital. One of his books, "Electro-Therapeutics and the Rœntgen Rays," is used as a text-book in some of the leading medical colleges throughout the country.

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Original Communications.

CARDIAC SURGERY—ITS LOST OPPORTUNITIES, SLOW DEVELOPMENT, AND PRESENT STATUS—A REVIEW OF THE SUBJECT OF HEART WOUNDS IN THE LIGHT OF OUR PRESENT KNOWLEDGE.*

By EDWIN M. HASBROUCK, M. D., Washington, D. C.

To every surgeon there comes once in a lifetime the opportunity to perform some rare or unusual operation, and because the chances are few and far between most men are keenly on the lookout for that one chance, and, theoretically at least, are as well or better prepared for it than for their everyday work. Hence my interest in the subject of cardiac surgery has been unabating ever since my second year as a medical student, when I saw a case of gunshot wound of the heart brought into the hospital and live for three hours without a solitary thing being done for the relief of the condition, other than the usual procrastinating and useless so-called expectant treatment.

In view of the fact that at that time—1894—the possibilities of heart suture had been suggested the affair made a lasting impression, and the subject of heart wounds took a prominent and lasting place in my interest in medical affairs—an interest that has never grown cold, but rather has increased with every report of a successful operation coming to my notice.

Some three or four years subsequently the local papers gave considerable attention to a case of a stab wound of the heart that was brought to Providence Hospital, and also allowed to die without anything being done to save the patient from an absolutely certain death, regardless of the fact that by this time several successful operations for heart wounds had been reported. I forget now the time elapsing between the receipt of the injury and the fatal ending—but if my memory serves me correctly it was something like two days.

This second episode set me to wondering as to the extent of injury to which the human heart might be subjected without an immediately fatal ending, with the result that I plunged into the literature for many weeks with some results that to me were startling. Up to that time I had not seen any papers upon the subject, nor have I since, dealing with the subject in the manner in which I shall deal with it here.

Bear in mind, please, that I was trying to analyze the situation (unconsciously, perhaps) of why, if cardiac suture having been successfully done in several cases, one of these two patients had been allowed to die without any attempt at the same, when there was apparently every opportunity for it; also, why with good surgeons at hand, who stood pre-eminent in the marvelous advances in other branches of surgery, had attempts to relieve a certainly fatal condition been so long developing when countless opportunities had presented themselves.

I do not claim that I have solved this conundrum satisfactorily; possibly there was needed a McDowell, a Langenbach, a McBurney or a Mayo in the localities where the chances presented themselves. At all events the first actual attempt to *do* anything for a cardiac injury was not made until 1896, when two unsuccessful efforts were made, followed a year later (1897) by Rehn, who published the first report of a successful operation.

Over 158 cases are now on record, with 59 recoveries, in the light of which if a man lives two hours following an injury there is surely time enough to do something for him with a fair chance of recovery.

In the light of what we now know to be possible, let us glance at what *was* possible, and the

*Read by invitation before the Shenandoah County (Va.) Medical Society, at Woodstock, Va., June 15, 1910.

lives that were lost for the want of boldness, and in the case of Dr. John B. Roberts in 1881, a lacking of the courage of his own convictions. (Roberts suggested the feasibility of opening the chest and suturing the opening in the heart, to which no less a man than VonBergman replied that the man who wanted to retain the respect of his fellow surgeons would leave the heart severely alone!) Incidentally, we shall glean some idea of what the human heart is capable of withstanding, and realize that because a man be stricken in this organ he need not of necessity die.

In referring to the cases to follow it is not of essential import to this paper that some of them happened before the dawn of heart surgery—in fact before the dawn of practically any kind of surgery; the point is that they did happen, and that life continued subsequently for the varying periods given.

As a result of my researches over 500 cases of heart trauma were unearthed, which readily admitted of a classification under five headings, as follows:

1. Injury slight; death in a short time.
2. Injury slight; life prolonged for a considerable period.
3. Injury severe; life prolonged for a considerable period.
4. Injury severe; life prolonged to a remarkable degree.
5. Cases of spontaneous recovery from any injury.

Of the fifth and last—"spontaneous recoveries from any injuries"—we need not concern ourselves. Needless to say they are few in number as compared with the whole, and they have no bearing in the present discussion. Of the remainder I have selected a sufficient number of each class to fully corroborate this axiom—*"given a patient with a heart wound, if he survives two hours there is an excellent chance of saving him by operation."*

If you will follow me closely the cases detailed cannot fail to be of interest, many of them are extraordinary.

Table I.—Injury Slight, Death in a Short Time

Case I.—Needle puncture of right ventricle; no treatment: one hour.

Case II.—Needle puncture of right ventricle; lacerated wound on surface of heart; venesection; over two hours.

Case III.—Stab wound of right ventricle; wound half inch long; no treatment; death in 75 minutes.

Case IV.—Gunshot of left ventricle; ball passed along outer wall; no treatment; died in one hour.

Case V.—Punctured wound of right auricle; simple puncture from a fractured rib; no treatment; death in one hour.

The above are given merely to illustrate the class of cases that fall readily under Division I. They were of course practically beyond mortal help, and have little or no real bearing on the discussion. Table II. has a different story to tell.

Table II.—Injury Slight, Life Prolonged for a Considerable Period.

Case I. Punctured wound half an inch long two inches from apex of right ventricle; treatment, iec internally and externally; lived four days and some hours.

Case II. Knife wound into the muscular substance between the ventricles; wound eighth inch deep; no treatment; lived three days.

Case III.—Knife wound of left ventricle half inch long and a third inch deep; did not penetrate the cavity; no treatment; lived nine and one-half hours.

Case IV.—Knife wound on surface of heart half inch long; no treatment; lived 21 days.

Case V.—Lance wound of interventricular septum; sliced off a piece from outer edge of ventricle which hung down; no treatment; lived four months and some days.

Case VI.—Bayonet wound of right ventricle two-thirds lines long; no treatment; lived sixteen and one-half hours.

Case VII.—Gunshot wound of apex of heart; ball passed through the apex, but did not penetrate the cavity; no treatment; lived twenty-six hours.

The above are slight injuries, serious enough when considered in connection with the heart, but as nothing in comparison with those found in

Table III. Injury Severe, Life Prolonged for a Considerable Period.

Case I.—Gunshot wound of right ventricle; ventricle pierced through and wound of exit five-eighths inch in diameter; transfusion and stimulation; lived three hours and five minutes.

Case II.—Stab wound through both ventri-

cles; no treatment; lived ten days.

Case III.—Pistol shot through right auricle and ventricle, the ball piercing both cavities; ball dropped into the ascending vena cava; no treatment; lived ninety-seven hours.

Case IV.—Stab wound of right and left ventricles; blade entered just to the left of intra-ventricular septum, passed partly through it and out through the right ventricle; no treatment; lived eight hours.

Case V.—Stab wound through both ventricles—the heart being transfixed; no teatment; lived five days.

Case VI.—Knife wound of right ventricle, opening one inch long into the cavity; also involving the nervous center of the diaphragm and extending half inch into the liver; no treatment; lived thirty-six hours.

Case VII.—Sword thrust through right auricle; blade passed entirely through the organ into the lung and five inches of the point was broken off and impacted in the heart; no treatment; lived one day.

Case VIII.—Sword thrust transfixing the heart; no treatment; lived four-fifths of a day.

Case IX.—Stab wound through right auricle and ventricle; a penetrating wound eight lines in length in the ventricle transfixing the tricuspid valve and making a hole of similar size in the auricle; no treatment; lived four days and twenty-three hours.

Case X.—Bayonet wound of left ventricle; transfixing wound entering the ventricle one and a half inches from the apex and emerging close to the inter-ventricular septum; no treatment; lived four days.

Case XI.—Gunshot of the left ventricle; ball passed through the ventricle and out through the apex; no treatment; lived twenty and three-quarter hours.

Case XII. Pistol shot wound of the left ventricle; ball penetrated the cavity and lodged in the base of the heart at the junction of the auricle and ventricle; no treatment; lived four days.

Case XIII.—Gunshot of left auricle and ventricle; the ball entered the auricle and dropped into the ventricle where it was found, and then as though the man had not already bled enough venesection was done; lived four days and eighteen hours.

Case XIV.—Punctured wound of the left ventricle, the heart being transfixed; lived twenty-nine and one-half hours and was then executed.

I sincerely trust that I am not overburdening you with this recital; the cases are intensely interesting, and the fourth and last class to which I shall call your attention contains some of the most astounding instances of survival from injury in all medical literature.

Table IV.—Injury Severe, Life Prolonged to a Remarkable Degree.

Case I.—Gunshot of right auricle and ventricle; ball penetrated through ventricle into the auricle; opening in ventricle half inch long and a circular opening in the tricuspid valve, the ball remaining in the auricle; no treatment; lived fourteen days.

Case II.—Punctured wound of the right auricle made by a splinter blown from the breech of a gun; a splinter of wood three inches long lodged in the ventricle, one end passing against the extreme end of the ventricle near the apex forcing itself betwen the columnæ carneæ and the internal surface of the heart; the other resting upon the tricuspid valve which it had partly torn. The stick itself was covered with a thick coagulum the size of a walnut; no treatment; lived five weeks and two days.

Case III.—Stab wound of left ventricle made with an iron stylet which remained firmly fixed in the substance of the heart; no treatment; lived twenty days.

Case IV.—Piece of wood blown through both ventricles from the breech of a gun; treatment by venisection; lived forty-seven days.

Case V.—Stab wound of right auricle and ventricle; right side of heart showed a number of fissures—one admitted a probe for half an inch into the right ventricle and divided the columnæ carneæ of the tricuspid valve; also a large opening penetrated the right auricle; no treatment; lived twenty-four days.

Case VI.—Stab wound through intra-ventricular septum; wound five-eighths of an inch deep severing the left coronary artery and vein; no treatment; lived four and a half months.

Case VII.—Gunshot wound of right auricle and ventricle; two shot loose in the auricle, three in the ventricle; no treatment; lived sixty-seven days.

Case VIII.—Stab wound through both ventricles; no treatment; lived ten days.

Case IX.—Pistol shot of left ventricle; ball passed into the cavity and lodged in the posterior wall; no treatment; lived eleven days and three hours.

Case X.—Stab wound of left ventricle penetrating the cavity; no treatment; lived sixty-six days.

The above might be indefinitely prolonged. They are sufficient I think to fully substantiate the assertion that heart wounds are not necessarily fatal, and the axiom laid down earlier in my paper. Add to this the fact that fifty-nine cases have recovered as the result of operation, and we cannot but wonder that relief measures were not attempted before.

Most of us can remember the time in our younger days when any injury to the heart, however slight, even to touch it was considered sufficient to cause instant death. With this as a retrospection, let us take as a fitting climax to what has been done in surgery of the heart, the magnificent experimental work being done by that indefatigable worker, Dr. Alexis Carrel, of the Rockefeller Institute of New York City, who at the last meeting of the American Association of Physicians and Surgeons presented the results of his work on the heart and thoracic aorta for aneurysm of the arch. In this work under the assumption that an aneurysm existed between the heart and innominate he first implanted a piece of blood vessel taken from another animal—*one that had been kept in cold storage for thirty days* (and in some instances a single paraffined tube) into the apex of the left ventricle and into the descending aorta, short-circuiting the blood, so to speak. After this amazing feat had been accomplished, he resected the supposed aneurysm or rather that portion of the arch between the heart and the innominate, and replaced it with a similar piece taken from another animal. With this section successfully grafted into place he removed the temporary short cut and restored both heart and descending aorta to their normal condition, and as a proof of his triumph exhibited photographs of his dogs thus treated capering about in good health.

With all these facts before us, it at once becomes apparent what immense possibilities exist in dealing with heart wounds, and that every case of suspected heart injury not instantly killed should be given the benefit of surgical aid, bearing in mind the fact that in most cases of cardiac injury where the patient survives, final death is usually due not to the injury itself, but to the gradual compression of the heart by the extravasation of the blood into the pericardium, which finally becomes so great as to stop the heart entirely.

Most operations, therefore, resolve themselves into exposure of the organ, evacuation of the clot and closure of the wound in the organ itself.

HYSTERIA IN ITS RELATION TO GYNECOLOGY AND OBSTETRICS.

By GEORGE F. BUTLER, A. M., M. D., Wilmette, Ill.

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Hysteria is an unstable state of nervous equilibrium in the genesis of whose manifestations everything occurs as if the psychic and the somatic phenomena were two manifestations of the same biologic facts.

The pains and physical disorders of hysteria, far from being capricious, are traceable to an origin—some incident, some pain, some action, which was associated with an acute momentary psychic agony. The process of conversion is an involuntary escape from an intolerable emotion comparable to the physical pain sometimes sought for intense grief. The patient wins relief from the tortured emotion, though at the expense of psychic abnormality, of a more or less divided state of consciousness and of physical pain, or else anesthesia. This condition may develop on a hitherto sound organism, or it may appear in congenital instability or on a neurosis due to autotoxæmia, traumatism, insolation or allied conditions.

The tendency of the condition to center around the genitalia arises from the inclination of psychic perturbations to collect there since the sexual system, more than any other, exerts emotional power over the individual, his morals, as well as social questions. The vicious circle of pathology is no where better illustrated than in these relations between hysteria and the genitalia. The latter may be so disturbed as to upset the equilibrium of the nervous system in such a way that they rise into consciousness, and by removing inhibitions on nervous explosions produce temporary, albeit lengthy, hysteroid states.

Removal of the genital disorder will not do away with these consequences, which, hence, require separate treatment. Removal of the local disorder, however will remove a predisposition, and the continuous etiologic factors, which, unremoved, would produce a permanent hysteric constitution.

The difference between these two states is excellently illustrated by the contrast between a distended bladder still able to contract normally on its contents when an opportunity of so doing is afforded, and the bladder in which distention has been so prolonged that nervous control has been lost and spontaneous expulsion has become impossible. The first condition corresponds to the constitution which, while hysteroid, is healthy enough to react normally, despite psychic lesions; the second, to a state in which, owing to the prolonged stress of psychic traumatism and nervous results, definite hysteria has arisen. The one state is still healthy, though abnormal; the other is a pronounced morbidity. Either of these two states may be complicated by other conditions which, in one case, tends to make temporary conditions permanent, and in the other produce aggravations of the unstable equilibrium by organic complications.

The various morbid conditions of the genitalia, cervic laceration, perineal laceration, retroflexions retroversions, etc., as well as rectal disorders may all produce profound neurasthenia, which, under a hysteroid predisposition, readily becomes an acquired hysteric constitution of intractable type. Moreover, the emotional and nervous explosions which result in both the hysteric and hysteroid states, generally are attended by such disturbances of innervation of nutrition, elimination and oxidation as to cause auto-intoxication. For example, the liver has been so affected by hysteria through disturbance of cerebro-spinal control that gallstone colic has been mimicked by an hysteric paroxysm.

Gaubius, centuries ago, found that the natural properties of the body fluids may be thus altered so that, with astonishing rapidity the bland becomes acrid and the salubrious hurtful or even virulent. The hysteric, in a passion, has been known to vomit bile of every color and acridity. Carpenter found, thirty years ago, that "melancholia and jealousy have a tendency to increase the quantity and to vitiate the quality of the biliary fluids." Indulgence of these feelings produces a decidedly morbific effect by disordering the digestive process and thus reacts upon the nervous system by impairing its healthy nutrition. The influence of sudden fright in checking bile secretion, and thus occasioning jaundice, was recognized by Bichat. Emotional jaundice, like emotional diarrhea, may be caused by abnormal action of the muscular coat of the gall duct and the intestine.

Jaundice following mental shock or long continued anxiety or grief is, as Budd remarks, often unattended by any alarming symptoms, but occasionally after it has existed for some time without marked cerebral symptoms, delirium gravis comes on, which proves rapidly fatal. After death in such cases the liver is sometimes found completely disorganized. Some virulent poison, according to Budd, is thus generated in the liver, which deranges, and then diseases the brain, and after death comes softening and disorganization of the liver itself. Wilson Philip claims that depression of mind, if protracted, alters the structure of the liver.

A case is recorded of an English officer who was forced to sail for India without his wife and without even bidding her farewell. On hearing of his departure she almost immediately became yellow took to her bed, refused food and medicine and died, in a very few weeks. Anthony Todd Thompson observed the case of a young man, who, having a musket pointed at his breast, became suddenly deeply jaundiced for which he was taken to a hospital and died. According to Murchison, there is good evidence that nervous agencies not only cause derangement, but cure disease of the liver. Acute atrophy, in which the secreting cells are rapidly disintegrated and the function of the organ arrested, appear, in many instances, to have a purely nervous origin. Very often the first symptoms of the disease have occurred immediately after a severe fright or an outburst of passion in a person previously healthy. Many observations have satisfied him that extrusion of gall-stones from the gall-bladder as well as their formation, may be traced to nervous agency. He has repeatedly known attacks of biliary colic from gallstones excited by some sudden emotion.

What is true of the liver is equally true of

the supra-renals and pancreas, the heart and circulatory apparatus, of the naso-pharynx, larynx and lungs, of the uterus and ovaries, of the kidneys, bladder, intestines and skin. Hysteric hemoptysis is cognate to stigmatization, blistering by suggestion, blue edema, antioneurotic edema, trophedema, etc. Hysteric pigmentation resulting from nerve disorder of the supra-renals simulates Addison's disease. The material basis of these, to some extent, organic changes is readily understood when the relations of the trophic nerves to vaso-motor disturbances, and the relation of the latter to emotional perturbations are remembered. The results of disease must also be taken into account. More than a quarter of a century ago organic changes in the spinal cord were shown to be the result, not the cause, of the hysteric contractures and paralyses.

The two phases of the pathologic vicious circle are present with peculiar potency in hysteria because of its conjoined psychic and somatic manifestations of the same biologic fact. The old theory of the "womb" origin of hysteria led to pelvic obsessions, not only on the part of the patient, but likewise on the part of gynecologists, producing a tremendous abuse against which gynecologists, like T. A. Eurmet and Goodell, and later, surgeons like Senn, protested. The greatest blow to these abuses was given by Angelucci and Pierracini, who, on analyzing 109 cases of allied hysteria treated surgically reported in America, Australia and Europe, found but seventeen in which benefit had been obtained. In nine of these there were surgical reasons for removal of the organs and many cases were not true hysteria. The hysteric possesses great suggestibility, and counterfeit operations have as much effect as the real.

An operation factor, to which J. W. White, of Philadelphia, years ago called attention anew, is the constitutional effect of the operation *per se* irrespective of its seat or nature. This element plays a large temporary part in all cases and is peculiarly apt to influence hysterics from their suggestibility. Taking into account the two-fold nature of hysteria, and accepting likewise the distinction between hysteroid states and the hysteric constitution—that is, between the potential and the developed hysteric—taking also into account the vicious pathologic circle, peculiarly potent in hysteria because of its occasional intense local manifestations which, when produced, aggravate the constitutional disorder, the complex relations of gynecology and hysteria are evident. That gynecologic treatment is necessary sometimes, even in hysteric pelvic disease, not only from the local conditions, but likewise for its constitutional effects is clear. That the local gynecologic procedures alone have their psychic effects, and sometimes very disastrous effects is certain. The disastrous somatic results of oophorectomy need now no demonstration, but these are not the only evil effects of the operation. A psychic suspicional irritability with depressing obsessions of being unsexed results and is a fertile evil of chronic hysteric insanity which often passes into paranoia of the dangerous persecutory type. Undue puttering over the genitalia, moreover, as Goodell has shown, creates a pelvic obsession which makes an otherwise quasi normal hysteroid a "womb crank."

Gynecologists are not the worst offenders in this "spot specialism," as it has been designated. The evil psychic influence of cylinder quacks and eye-strain doctrinaires has been as great, if not greater, than that of the gynecologists, but the somatic disturbance was somewhat less while resultant neglect of actually indicated surgical procedure was much greater.

Another specialty has entered the gynecologic domain. The nose seems destined to be the womb Mecca of the surgical future, since it has much closer relation to hysteria than to the eye. This is due to nasal relations of menstruation. From the earliest times menstruation has been held to favor hysteria. Landowzy has cited a number of cases of hysteria during healthy menstruation, while Ball maintains that hysteria shows its true character during menstruation. When an irritation to the nasal mucous membrane fails for some reason to liberate the sneezing reflex, a feeling of excitement and tension arises. This excitement not being able to stream out over other motor channels now spreads itself over the brain, inhibiting other activities. In the highest spheres of human activity may be seen the same process. The relation of the nose to the genitalia involves more than the psychic element here suggested. The sexual disturbance produced by arrest of respiration points to a somatic element.

Laycock found that in women love for musk and perfumes is related to volupty, an observation corroborated by Coloquet. A playful

attempt to throttle a woman by her lover is often felt by her to be pleasurable, though the sexual side be not obvious. "In one case a woman indifferent to coitus had a longing to be throttled and did anything to have her neck squeezed by her lover until her eyelids bulged." The strangling element associated with the *globus hystericus* is related to these phenomena as well as is eroticism due to nasal and laryngeal disorders of the erectile tissue of the nose. As Mackenzie, of Baltimore, has shown, the old associations of olfaction and volupty have continued this as an erogenous zone, even though desire produced by olfactory association has been largely replaced in man by desire from visual association. The extent to which olfaction exerts an influence in this direction on man has been, however, much underestimated.

Fliess, as long ago as 1897, read a paper arising from Mackenzie's suggestion before the Berlin Obstetrical Society in which he pointed out that there was a dysmenorrhœa dependent on changes in the nose and curable by treatment of these.

His results were corroborated by Nassuer and Linder of Munich, and Ries, of Chicago, who found that pain continuing after the flow was cured by nasal cocainization, even in cases where the menorrhalgia had resisted operative procedures.

The results obtained by Fliess' methods through which hysteric suggestibility was excluded are further corroborated and cleared up as to the naso-genital relations in reports made of cases in which emotionally nervous disturbance resulted from turbinate disorder which required both rhinologic and constitutional treatment. Here the vicious circle element is at once apparent. Certain of these cases display a local genital state first, then the nasal disorders (whence the "catarrh" of the sexual neurasthenic), then the sexo-nervous explosions which do not rise into consciousness but create nerve perturbations with nerve fatigue and resultant hysteroid, or if on the proper constitution, hysteric state. The phenomena of the sneezing reflex are intensified. The influence of hysteroid states and the hysteric constitution in these relations of olfaction and the reproductive apparatus is apparent in the anosmia of oophorectomy and the menopause and in olfactory hyperesthesias and paresthesias of hysteria very early recognized in therapeusis.

Arstaens, accepting the view of Hippocrates that hysteria was a suffocation of the womb, finds that the "womb delights in fragrant smells and advances towards them. It has an aversion to fetid smells and flies from them. It is an animal within an animal." He advises for this reason application of fetid odors to the nose and rubbing fragrant ointment around the sexual parts. This treatment, as Havelock Ellis remarks, furnishes another instance of a continuity of therapeutic methods during all changes of theory. From the earliest to the latest times drugs of unpleasant odor, like asafetida, valerian, sumbul, etc., have always been used in hysteria. Medicine to-day finds asafetida a powerful sedative to uterine states. In popular or skatologic medicine a still more potent influence was ascribed to stenches, as Kiernan pointed out to the Chicago Academy of Medicine more than five years ago. Dr. Smollet, in Humphrey Clinker, depicts a typical hysteric servant with marked eroticism, grand hysteria, *globus hystericus,* etc., who, coming to Edinburgh, consoles herself for the dejecta being thrown in the streets by the beneficent effects of the odor.

The fact is that during hysteric paroxysms preceding menstruation, odors, both pleasant and unpleasant, emitted by women indicate a physiologic phase of this naso-genital relation. Nasal turgescence with resultant coryza is, in women, often relieved by masturbation or menstruation.

Such influence of the pelvic organs on the nose demonstrates the error of neglecting gynecologic treatment when the nasal origin seems dominant, just as the reverse obtains where the pelvic element is most apparent.

The secondary results in the autotoxic neurasthenia require peculiar treatment since very often such treatments cause disappearance of all symptoms despite the continuance of their seeming primary causes. Treatment of these last is imperatively demanded, however, as they constitute a continuing predisposition. Whether they should be treated first, or as part of the nerve autotoxic treatment must be determined by the erethism of the patient. Gynecologic treatment will increase this in most instances, and tends to create a pelvic obsession. Nasal treatment will lessen this erethism and hence

lay the foundation for treatment. Under autotoxic states excretions through the nasal mucous membrane often increase erethism; hence combination of elimination and nasal sedation seem indicated. Cocainization of the nasal mucous membrane should not be done here without elimination. Camphor monobromate internally will aid the anaphrodisiac effect of the nasal treatment and will quiet the hysteric circulatory disturbance accompanying the paradoxia sexualis of hysteric erethism. This paradoxia is a physical, sexual rigidity with intense sexual preoccupations, evincing itself in mixoscopia, which is shocked at any *normal* ethical sexual relation. As a disturbing factor this is peculiarly potent in hysteria and causes pelvic and olfactory erethism. Physical pelvic and olfactory consequences result from this hysteric mental state and increase it.

Hysteroid manifestations, and seemingly true hysteria, often proceed from unequal development of the ovaries and uterus during the stress of puberty and adolescence, under the law of economy of growth which compels the struggle for existence between the organs for assimilable nutriment. Failure of the ovaries to obtain their share results in undue uterine development. Failure of the uterus to develop beyond the infantile state results in disproportionate development of the ovaries. Either results in hysteric or hysteroid conditions with either hyperesthetic or paraesthetic erethism. In either case the treatment of the pelvic organs, including electrotherapy, combined with proper "rest" treatment, inclusive of treatment of auto-intoxication, leads to properly balanced development of the reproductive system in all its somatic and psychic relations. What would be a typical hysteric often taking the harlot or sexually anomalous direction becomes a normal, equably balanced woman, neither a shrew nor a harlot nor

"Too bright and good
For human nature's daily food."

Hysteria in connection with obstetrics involves many problems of internal medicine, neurology and psychiatry not much discussed because the essential elements are ignored. Pregnancy is looked upon by the mass of practitioners as a purely normal process, despite the undeniably frequent pathologic results which flow from it. "Pathologic," as Virchow says, "does not necessarily mean harmful; it does not indicate disease. Disease in Greek is *nosos* and it is nosology that is concerned with disease. Every departure from the physiologic norm previously existing is a pathologic event." So far as the mother is concerned pregnancy is a pathologic disturbance of the balance previously existing in the organism.

FACIAL ERYSIPELAS WITH MENINGITIS AS A SEQUEL—REPORT OF CASE WITH FATAL RESULT.*

By JOHN N. UPSHUR, M. D., Richmond, Va.

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Facial erysipelas, a disease commonly seen, is usually simple in its therapy, and in many cases free from complications or serious sequelae; not that I mean to be understood that it is not to be considered always a grave affection, because it is usually seen at, and past, middle life and its gravity is generally to be measured by the advanced years of the patient. Especially is this true when we remember that back of it may be some insidious renal disease, Bright's or diabetes, disease of some other vital organ or the depressant effect of alcoholism. The more common complication or, I should say, sequela, is the formation of abscess in the cellular tissue; sometimes ulcerative endocarditis, suppurative pleurisy, or pericarditis. Anders states that meningitis occurred only once in 1674 cases collected by him. I have examined many authorities, and meningitis is mentioned by a few of them as a very rare complication, and dismissed with a sentence. By many of them it is not referred to at all.

The following case recently came under my observation:

Mrs. ———, aged 40 years; of large physique and full habit; had borne three children; no trouble in any labor; she had never had any serious illness during the seventeen years I had been her physician, and never had any vice of constitution. Several years before this illness she had an attack of hematuria.

The present illness began on December 14, 1909, and as I was absent, she was seen on this day by Dr. Francis W. Upshur, the case coming

*Read before the Richmond Academy of Medicine and Surgery, January 11, 1910.

under my eare on December 19th. Her earliest symptom was hematuria. Two days later erysipelas developed on the side of the nose and spread over the face to the roots of the hair, the chin and backwards, involving the ears. There were no unusual symptoms and nothing in the case to cause alarm. The hematuria was promptly controlled by the usual remedies, though examination of the urine a week later showed a large amount of albumin, and, microscopically, blood corpuscles, epithelium and crystals massed in lumps with the characteristics of oxalate of lime. By the twenty-second of December, the erysipelas had subsided and all of her symptoms had abated; temperature dropped almost to normal, tongue began to clean and appetite returned. During the progress of the attack, there had been a tendency of the mind to wander. On the twenty-third of December, I noticed that the pupils were sluggish in response to light; but improvement was most marked, face clearing up and skin returning to normal.

On the night of December 25th, the nurse 'phoned that the patient seemed worse and could be aroused with difficulty—she seemed very sleepy; other symptoms were about the same. here was no involvement of heart or lungs during the attack, though for a day or two she had a slight cough. I suppose that probably the increased drowsiness was caused by fatigue, as it was Christmas day and she was nursed by the family in the middle of the day while the nurse was off duty; that she had possibly had too much company and too much talking in her room. This, however, I do not know, as company had been forbidden.

The nurse was instructed to call me at bedtime if there was any change in the symptoms. However, she did not call me until next morning, when she reported that the patient was decidedly worse. I saw her before 10 A. M. and found her condition critical. She was rapidly drifting into profound coma—pupils almost irresponsive, inability to protrude tongue or swallow and loss of control of sphincters. Deep pressure of the whole cervical and upper dorsal region revealed great tenderness. A deep red rash extended from the neck across the shoulders, to a line drawn through the inferior angles of the scapulae, and had the appearance of a profound erythema. An isolated patch here and there on the border of the rash was raised and resembled urticaria. This rash subsequently extended to the waist; it certainly was not erysipelas.

In spite of all remedies, the patient continued to grow worse and died on December 29th. I suspect there was some latent disease in the kidneys, but I had never the opportunity to find out.

In connection with this case I want to emphasize the experience of many years—the efficiency of turpentine as a local application in erysipelas. In my hands, it has been worth all other agents put together.

INDICATIONS FOR TREPHINING THE MASTOID.*

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Is mastoiditis a modern disease, and if not why did we not hear of patients dying of it in former years as at present?

The answer to these questions, not infrequently propounded to the specialist by the skeptical layman, is the keynote of the few remarks which I shall make on this subject.

Every intelligent practitioner to-day, in the light of our present knowledge, realizes that in times past mastoiditis must have been a common disorder and one responsible for a large number of fatalities.

The frequency with which fatal intracranial complications are traceable to a suppurating focus in the mastoid, has been abundantly proven by autopsy statistics. Even at the present day, in many of these cases, the mastoid condition was not recognized during life. In former days when middle ear pathology was little understood, and mastoid symptoms, if present, misinterpreted; and when the mastoid cells were seldom or never opened, there can be no doubt that thousands of these patients went to their death under comprehensive diagnosis of "brain fever" or some like obscure, but satisfactory name.

The chief reason that mastoid abscess so easily escaped observation in the past is the same which explains why it also goes unrecognized very frequently at the present day. This is the fact that mastoid abscess is not necessarily at-

*Read before the Society of Northern Virginia and District of Columbia at Washington, November 17, 1909.

tended by obvious external symptoms. Because some physicians continue under the impression that there can be no mastoid disease without swelling, redness and edema in this locality, it happens that many serious cases of this trouble are overlooked, or wrongly diagnosed. The writer has himself recently had personal experience with cases that were treated for weeks as malaria and typhoid, the true conditions not being known until too late to be helped by surgical means.

It is especially important to call attention to the cases in which local symptoms are lacking, for the reason that these are in fact of all the most dangerous.

Redness, swelling, and other local symptoms occur, as one can easily understand with greatest readiness when the antrum or other mastoid cells are superficially located. When, however, the external mastoid cortex is thick, local manifestations are less marked or even absent altogether. It is, naturally, in the latter class that intracranial complications are more likely to occur, because here the suppurating focus is nearer the brain and its outward progress being opposed by the thick external wall, it cannot extend except inward toward the intracranial cavity.

A mere glance at some of these specimens of temporal bones which I have brought with me will give you a clearer idea of the anatomical peculiarities of this region than I could produce in a lengthy, detailed description and will serve to explain some of the features of this disease, and especially some of the attendant dangers.

I would call your attention to just a few points. You will observe immediately back of the tympanic cavity a large cell known as the antrum. It is connected with it by a narrow channel termed the aditus. The antrum is the largest of the mastoid cells and the uppermost situated. If in the event of a mastoiditis the suppuration be confined to this one cell, we would expect in most cases a satisfactory outcome, the pus draining through the aditus into the tympanic cavity, and through the perforated drum outward into the external coral. But how can we expect such a result if the labyrinth of cells occupying the rest of the mastoid process, sometimes even to the very tip, becomes involved and filled with purulent secretions? The difficulties of drainage in such case are obvious.

To make matters worse, the lining membrane of the aditus becomes swollen and infiltrated from the inflammatory process, thus narrowing the outlet, which may become still further blocked by thickened secretions. Drainage toward the tympanum being cut off, the pus under tension will travel in the direction of least resistance. In the adult the outer layer is usually the thickest, so that it is of all, the least likely to give way. Unfortunately there is no other direction for the pus to take where it will not come in contact with vital structure.

For if it break through the upper thin wall of the antrum it must come at once into the floor of the middle cerebral fossa; if it extend backward it is liable to involve the sigmoid sinus and produce a sinus thrombosis, and if it extend inward it will involve the labyrinth causing total deafness and perhaps leading to a fatal meningitis.

Another anatomical feature of great practical importance, which is beautifully illustrated in some of these specimens, is the wide and varied distribution of the pneumatic cells. The text books tell us that these cells may occupy the whole mastoid apophysis extending to the very tip; but they seldom mention the little anomalous areas that occur so regularly in certain situations that they might almost be regarded as normal. Observe the extension of these air-cells just below the floor of the tympanic cavity as well as above its roof and in greater size and quantity in the posterior root of the zygoma.

Observe also, another little group seen in most of the specimens just about the mouth of the Eustachian tube; and in one of the specimens at least, you may see some fine cells in close proximity to the semi-circular canals.

The important thing about these stray groups of cells is that they are located in proximity to vital structures, and therefore threaten them with involvement when they themselves are the seat of the suppurative process.

It is unnecessary to remark that pneumatic areas in the neighborhood of the original focus of suppuration constitute the natural paths along which infections tend to spread.

The question of the surgical opening of the mastoid cells is rendered much more intelligible if we have a clear understanding of the

pathological processes which occur in the region. This we cannot give in detail but we wish merely to set before your minds a very simple and rational classification which will serve to elucidate my own views with regard to operative intervention.

I would have you then distinguish the following conditions as occurring within the mastoid:

1. *Empyema of the Mastoid Antrum.*—This means merely a collection of pus without inflammation—that is, without inflammation of the cavity in which the purulent collection is found. The pus has its source not in the antrum, but in the tympanic cavity which is the seat of a suppurative inflammation. The channel which connects these two cavities constitutes, when it keeps open, the path through which the pus has traveled. The antrum being posterior to the tympanum, the draining is naturally favored by the recumbent position of the patient.

Empyema of the antrum is probably a much more common condition than is usually supposed, if we can trust inference drawn from its accidental discovery in operative work, and post-mortem findings.

It does not give rise to symptoms outside of those due to otitis media and operation is out of the question.

2. *Inflammation of the Mastoid Mucosa.*—Inasmuch as the antrum and adjoining air-cells are lined with a continuation of the mucous membrane covering the tympanic cavity proper, it is but natural to expect that any very severe inflammation of the latter would propagate itself to the former. That is in fact what happens. It is not unusual in cases of intense otitis media to find slight mastoid symptoms, especially tip tenderness due merely to inflammation of this character.

It is quite possible for inflammation affecting the mucosa only to spontaneously subside, and if we can be sure that it is thus limited, operation is not indicated. Very often, however, the symptoms are very pronounced and so suggestive of the affection we shall next describe, that it is impossible, in the beginning at least, to separate the two clinically.

3. *Mastoiditis Proper.*—When the inflammatory process advances to the stage of involving the bony structure, our third and last form is present. The osseous trabeculæ are infiltrated and involved in a suppurative process best described as an osteitis rarefícans.

When we are sure that this condition exists, resolution is practically out of the question and operation is imperatively demanded.

Bearing these distinctions in mind let us now consider specifically the indications of opening the mastoid, which in accordance with our scheme of classification naturally resolves itself in the question of the differential diagnosis between the two forms of inflammation last mentioned.

Suppurative inflammation of the mastoid cells proper is revealed as a rule by both constitutional and local symptoms. The former may lead us to suspect, but it is only when combined with the latter that we can diagnose its presence with certainty. If, in the course of a suppurative otitis we observe the fever to rise, and simultaneously the patient complains of intense cephalalgia located in the corresponding temporal region it behooves the attending physician to be on his guard and at once to examine more carefully for other symptoms indicating a possible mastoid complication.

If the temperature has been taken regularly an elevation will nearly always be noted at the onset, but later this may decline and remain nearly or completely normal, and it is not uncommon upon opening the mastoid cells to find the most extensive disease in patients who at the time are entirely fever free.

To depend upon the temperature, therefore, is to run the risk of being sadly deceived.

The spontaneous pain, like the fever, is usually present at the onset and may be lacking later. The pain is, at times very intense, located not merely in the region just back of the auricle, but extending over the entire temporal region, and often into the occipital and frontal regions.

The pain is characteristic in the fact of its being greatly intensified at night, usually entirely preventing sleep.

The prostration of the patient is generally marked and may reach an extreme degree. If the trouble is allowed to continue, the patient becomes worn and exhausted by his suffering, the expression is haggard and debility and vital depression are manifest. I consider that the profound prostration in these cases is even more indicative than the fever. If now, we test the

sensitiveness of the mastoid region to pressure, we obtain a most valuable sign of mastoid involvement. A slight sensitiveness in the tip is not particularly significant, as it is likely to be present from an inflammation of the mucous membrane of the cells without suppuration. But tenderness to pressure just over the antrum and in the posterior part of the mastoid process is especially characteristic.

A word of precaution in regard to eliciting the symptom of tenderness. Some persons are more sensitive to pressure than others, for which reason it is always well to compare the sound side with that of the side suspected. Be careful in making pressure not to touch the auricle, as tenderness here may come from an entirely different cause. The physician should stand so as to observe the expression of the patient as direct vertical pressure is made against the bone now upon one side and now upon the other. Do not press the finger-nail into the skin, but make firm steady pressure with the pulp of the finger.

If the patient happen to have that type of mastoid process in which there exist large cells encroaching closely upon the outer cortex of the bone, the external signs of inflammation will be in evidence. When redness and edematous swelling occur over the mastoid in an adult at least, they are conclusive, and indicate the necessity of immediate operation.

In the case of children these external swellings occur more readily than in the adult and their presence is not necessarily an indication of mastoid involvement.

The character and amount of the discharge may furnish valuable information for drawing conclusion as to the involvement of the mastoid. When the discharge is very profuse, more than we would expect from an inflammation of the tympanum alone, the inference is natural that some of it finds its source in the infected mastoid cells. In fact, for some surgeons a profuse suppuration which continues, even in the absence of other distinctive symptoms, is a sufficient indication for operative intervention. Koerner, than whom few have had greater experience in mastoid surgery, says: "In case of profuse suppuration which does not cease in two to four weeks, I have always found bone destruction."

On the other hand, the sudden cessation of discharge, if accompanied by increase of pain, should be viewed with alarm, because it may mean that for some reason the pus, not being able to escape externally—an accumulation has taken place under tension within the cells.

Bacteriological examination of the pus will often throw valued light upon the pathological process and aid us in deciding whether to operate or not in doubtful cases. The staphylococcus infections are generally of a more benign type than those due to the streptococcus and pneumococcus, and recent information tends to show that we have most of all to dread the encapsulated cocci, for when this type of organism is present involvement of the bone is imminent.

The discovery of bone debris in the sediment of the pus would naturally indicate bone destruction and point to the necessity of operation.

Finally the diagnosis of mastoid disease should be clinched by a careful otoscopic examination.

There are several points upon which the skilled otologist may get valuable information in this way, but I will mention only one because it is an important diagnostic sign and one which the general practitioner should also be able to observe with very little practice in examining the ear. I refer to a sagging or prolapse in the posterior superior wall of the external canal which is often met with in mastoid abscess, and which, when present is regarded as pathognomonic. Here it may be mentioned that transillumination properly carried out will also give valuable information as to the state of the mastoid cells.

There is practically but one aural condition which is likely to be confused with mastoiditis and that is furunculosis of the external auditory canal, because of the severe pain and other local inflammatory symptoms with which it is generally attended.

It is to be remembered, however, that mastoid inflammation is always accompanied by deafness, often of a high degree, which is not a symptom of furunculosis unless it happens that the meatus is completely closed by the swelling.

In furunculosis the slightest movement of the auricle is painful, while in mastoid inflammation the tenderness is confined to the bony

prominence just back of the auricle. There may be also some secretion in case of furunculosis, but it is always slight, and we never see the abundant discharge which is an important sign of mastoid suppuration.

The great bodily prostration and depression of the vital forces which occurs in the latter will also be missed in a case of simple furunculosis.

In the presence of symptoms pointing to a mastoiditis, the question must always arise as to whether intervention is indicated, and if so, how long shall we wait before undertaking it. Shall we operate at once or shall we temporize with the expectation that trephining the bone may be avoided by the judicious employment of antiphlogistic and palliative measure.

My contention is that in all cases in which the inflammatory process has gone deeper than the mucous membrane and involved the osseous structure of the cells, delay is not only useless, but absolutely and positively dangerous.

The main difficulty hinges upon the important question as to whether or not we have before us a case of mastoiditis in the sense of actual involvement of the bony structure, or whether we have a simple inflammation confined to the mucous lining of the cells, or what is not uncommon, a mere empyema of the antrum.

In either of the two last mentioned conditions, both of which may present symptoms closely simulating a true mastoiditis, it is quite possible to have a recovery through the regular course of nature.

In deciding whether or not we have a genuine mastoiditis, and therefore one requiring operation, we must be governed not by a single symptom, but by a combination of local and general manifestations, the course of the disease and the otoscopic appearances.

Of general symptoms, the most important are the cephalalgia, fever, and prostration; but it is necessary to bear in mind that under certain conditions the pain may have ceased and the temperature be normal and the patient express himself as enjoying a state of relative euphoria.

Of local symptoms, edematous swelling, with redness and tenderness, if they happen to be present, are conclusive when associated with a suppurative ear; but it must be remembered that in many cases, and these are the most urgently in need of operation, the objective local symptoms may be wholly lacking. Very significant in these latent cases, is the presence of a continuous abundant discharge from the external canal associated with tenderness upon pressure directly over the mastoid.

The last mentioned symptom, tenderness, is of all the most constant, and very indicative, if elicited properly, and is present beyond question.

When the other symptoms are not conclusive, valuable confirmatory evidence may be obtained, as already stated by otoscopic examination, and some aid further, by a consideration of the bacteriological findings.

In a case in which the process is limited to the mucous membrane, antiseptic cleansing treatment of the middle ear, together with the use of energetic antiphlogistic processes (of which I think the ice-pack is the more useful), with rest and depletion, will no doubt assist in bringing about a speedy resolution and cure.

But let us warn against a too prolonged use of the expectant treatment. The ice cap should not be persisted in for a period longer than forty-eight hours, for if in this time the inflammatory symptoms have not abated, we may be sure the process extends deeper than the mucous membrane, and that operation is inevitable.

Besides the likelihood of neuralgia developing from prolonged use of the ice-compress we must reckon with the possibility of its masking the symptoms, thus giving a false impression of security.

Let us then, rank as one of the main indications for operative intervention, the persistence of mastoid symptoms beyond a period of three or four days, and especially when this is true in spite of active antiphlogistic measures.

Of course, the appearance of any sign or symptom which would lead us to suspect the extension of the disease beyond the mastoid cells into the internal ear or the brain contents, such as vertigo, nausea, vomiting, etc., must be regarded as urgent indications for immediate intervention.

Finally let us say in doubtful cases, operate; for balancing against the practically negligible danger of trephining the mastoid, the very serious consequences which may ensue from a

policy of inaction, clearly the risk of delay outweighs in danger that of the operation, and justice to our patient demands that we give the benefit of the doubt.

The Rochambeau, 815 Conn. Ave.

THE VALUE OF EXERCISE IN INFANCY.*

By ST. GEORGE T. GRINNAN.

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The Roman physicians gave special regard to the value of exercise. One of the most notable writers on the subject was Celsus, whose advice is good to-day. He advises exercise, which should always precede food. So earnest is Celsus in advising exercise, that he says that if the usual means of exercise are not available, such as riding or sailing or the violent exercise of a carriage, a bed ought to be suspended and moved from side to side. If there be not even that, a prop is to be put under one foot and by this fulcrum the bed is to be propelled backwards and forwards by the hand.

In the second century of the Christian Era exercise is much discussed, "And it is better in the open air than in a portico, better in shade formed by shrubberies than that which is under a roof." (Food, Air and Exercise.—Rabligliati, p. 529). The Roman may not have known about oxidation or waste products in the blood; he may not have been able to give chemical names for these substances, but his juxtaposition of digestion with movements and his clear perception of their interdependence and relations to one another mark him out as possessing the insight required by the accomplished physician at all times. This same man compelled our admiration by his advice regarding the changes in the pulse many hundreds of years before the discovery of the circulation of the blood.

We have a large number of valuable books on the subject of exercise, mostly founded on the Swedish system inaugurated by Ling. Baron Nile Posse has published (Lee and Shepard, Boston), a small, but well arranged set of exercises for children. One of the oldest schools in North Carolina has for its motto, *"Mens sana in corpore sano."*

In England, beef is made tender by chaining a steer to the stall for six months. The lack of exercise makes the muscles tender. The modern poultry man raises chickens in a box four by eight feet, in order to have tender meat. Compare the digestion of a bank clerk with that of a husky farmer.

Parents are not and should not be content with simply preserving life in an infant. They naturally expect a well-developed, healthy child, because they are beginning to find that there are means to obtain good development even in early infancy. When an infant is able to walk, and is in the second year, exercise becomes a very important factor and a valuable aid to digestion. When an infant is eighteen months old exercise is especially valuable, and an infant of this age, when allowed to play on the grass in the open air, in the shade if hot, will eat and digest what the same infant would neither eat nor digest when heavily clothed, strapped to a go-cart and rolled about on brick pavements in a town. An infant just beginning to walk is delayed in walking if it must depend on brick pavements where a fall will result in some injury, or the mother fears to allow the child to walk lest it be injured by falling. This delay in walking is a serious drawback to digestion. A mother should be taught that while an infant, by means of a go-cart, can be raised in a town, the same infant will do much better if raised in the suburbs or the country where a grass lawn will afford a place for exercise in pure air. I believe that the go-cart, while a valuable means of taking an infant out, has been much abused and has been the cause of much early underdevelopment, with accompanying digestive trouble.

I recently saw, in New York City, an infant eight months old, female, the child of a physician, and under the care of a prominent pediatrician. This infant has been allowed to exercise on the floor on a quilt, and though only eight months old, could sit at the table in a high chair and eat bread. She drank forty ounces of milk a day and ate stewed apples. The infant spent considerable portion of the day in the park.

The following cases will illustrate the value of exercise and country air:

Number 1, Baby B., was born in the country. When one year old the parents moved to Richmond. The baby was kept in a carriage and rolled about the streets. Digestion was

*Read before the Richmond Academy of Medicine and Surgery, July 12, 1910.

poor, the bowels constipated and gain was slow. When the infant was two years old the parents moved back to the country. The condition improved in every way and the child soon gained weight and strength. After a stay of six months in the country, the parents moved back to town. When the child was brought back to town, aged two and one-half years, he weighed thirty-two pounds. The parents remained in town eighteen months, and during the time, the child did not gain a pound. A return to the country brought about an improvement, although this time the improvement was slower, as the child did not care to exercise, was not digesting well and had poor appetite. He remained in the country and soon developed into a strong boy.

Number 2, Baby W., aged 26 months, lived in a second flat, and was apparently a well-developed child. He was very obstinately constipated, had an obstinate indigestion, and slept poorly. This case was referred to me by a physician who had tried every known means of making the bowels move. Castor oil, salts cascara, massage, fruits, olive oil and cereals, all seemed useless. High enemas and colonic flushes would, with great difficulty, move the bowels, and the mother and child fought this out every other day. It seemed very hopeless; textbooks gave little encouragement. I discarded every drug and insisted that the family move to the suburbs, where the child could be out without danger to himself and play under the trees and on the grass the larger portion of the day. The effect was like magic. The child, which had been under constant observation for eight or nine months, immediately had a good appetite and slept well. The good natural sleep restored digestion, and the bowels moved without a purgative. Two years have elapsed since the child moved to the suburbs, and it has remained entirely well.

Number 3, Baby W., was born in Richmond, and was near dying of milk infection when six months old. The parents moved to the country near the city. The infant is nineteen months old, plays out all day, except for a nap, and eats three meals a day at the table. His diet consists of bread, meat, vegetables, including green peas, and anything on the table. It would be hard to find a boy in town who can run and play as he does. Surely he would not be able to eat such a diet if he was rolled in a go-cart on a brick pavement in town or tied down to the pace of an old nurse. I am not this child's physician, and do not advocate the diet, but the case illustrates well the value of exercise in pure air.

Number 4, Baby D. A mother asked why her child eighteen months old did not digest and had no appetite. The child was put in a go-cart at seven A. M. and rolled on the brick pavement for an hour and a half, or sat in the old nurse's lap on some carriage-stone to get the morning air. The child did some little walking, but was held by the old nurse for fear of falling. A carriage drive for the late afternoon was a routine. The bowels were irregular, loose or constipated. Barley gruel half the time was all the child could digest. It had never been to a park for fear of taking some disease. I ordered it to be taken to the park at seven A. M. in a go-cart, taken out and allowed to run about on the grass if not wet, or on the walks. To the mother's astonishment the child refused to go back in the go-cart the first morning, and walked home, five blocks. The afternoon carriage drive was changed to exercise in a park or a country friend's yard. The effect was wonderful. The child developed a healthy appetite, began eating bread, drank over forty ounces of milk and ate rice. The bowels became firm, yellow and regular, with no medicine since the exercise was prescribed.

Number 5. A notable instance that came to my attention was that of the female infants, the same age of two brothers. One brother is well-to-do, and lives in Richmond. The other brother is a poor preacher, living in a healthy, elevated, country village. The Richmond baby was nursed nine months, then fed on special cow's milk. He never had any illness, spent the first summer in the country and has done well.

The child of the preacher was born two months after her mother was operated upon for cancer of the breast. This infant was never nursed at the breast and had a hard time for eight or nine months. At the age of eighteen months, this child, with an adverse start in life, was equal in weight and development to the child raised in town with the enviable gospel of good milk. What caused the wonderful development of the infant born of a mother who

had cancer, and was not nursed at the breast? This child had a beautiful lawn with grass and shade and pure air. That answers the question. She slept later in the morning, was able to walk early, could exercise more, and slept in pure air. This child was not kept in the house from nine in the morning until five in the afternoon on account of heat.

Number 6. A boy, aged seven, was in the hospital with typhoid fever and had an uneventful case. The fever reached normal in three weeks, remained normal five or six days, at which time it returned and was constant, running to 100 or 101 degrees F. in the afternoon. Otherwise, the child seemed remarkably well. In appearance he was pale. After consultation, I advised more food and removal from the hospital, where he could be gotten out of bed. This was refused. After another week and another consultation, I insisted that the child be removed from the hospital, as he had a very good place at home. No; the child had fever, and was kept in bed in the hospital on liquid diet. Another week and another consultation,—I gave the same advice. It was followed. Two days after going home where the boy was gotten out of bed, the fever left and recovery was rapid. Of course, this is an old story and familiar to all now. In Osler's early articles on typhoid, he says that the only cure for the after-fever of typhoid is to break the thermometer. All know now that the lack of exercise in such cases is sufficient to cause fever.

Number 7, Baby G., an infant aged nineteen months, always very strong and healthy, remarkably well developed and in good condition. arrived (Richmond) from his country home in West Virginia. At his former home he could walk and play in the yard a large portion of the day, with fresh air, day and night. When the family came to town, the child was put in a small room on the second floor. There was no yard, and the porch, in the hot sun was four feet wide and fifteen feet long. The child could not run in the street, as he was not accustomed to danger. He lost appetite, lost flesh rapidly, became pale like his neighbors, and was soon reduced to barley diet with small quantities of milk. His face became pinched and the bones prominent on the forehead. He had little fever. The neighbors consoled the mother with the fact that the child was able to walk and alive. Lack of exercise and pure air were a severe strain on this child's life.

Number 8, Baby S. The parents are poor. The father worked with the best dairy in the city and got plenty of good milk. The mother has twins, which were nursed and then fed on the best milk that could be gotten. The twins are twenty months old, and have never had any serious diarrhea, but have been raised in a small flat and have never had any chance to go out, as the mother cooks and does all of her housework. The skin of each child is soft and flabby. They appear very old. They are so pale and colorless that their complexion is a new standard for whiteness. Good milk, with poor town air and no exercise will not make healthy children.

Pure milk has done more for young infants than any one can estimate, and there seems to be a general notion now that just so the milk is pure the child will live and thrive. Never was there a greater error. We must have green grass, shade trees and pure air, together with pure milk. We cannot preach the gospel of pure milk and stop without raising a crop of physically unfit. The absence of literature on this subject is good evidence of how it has been neglected. From the age of two and three years and up, country air or a play ground of ample size is so essential to development of child life, that all who are able should live in the suburbs or in the neighborhood of some playground. Two months in the summer spent in the country is very good, but twelve months spent in the country is better. One of the most notable instances of the value of exercise in conjunction with fresh air was found when children from orthopedic hospitals in New York City were removed to the seashore. More improvement took place in the hot weather at the seashore than in double the time at the hospital in cold weather.

Such a large number of our population is raised in town, that unless due care is taken, the time must come when the degeneration that has stamped Egypt, Greece, Italy, France and even England, will be talked of in America. There is no truer expression than, "The child is father of the man." By all odds, the largest field of work in the medical world now is pediatrics where from early infancy we can so de-

velop the body as to eliminate, prevent, or minimize, the many disorders that flesh is heir to. Where surgical cases are counted by hundreds, children are counted by thousands, and so with adult medical cases. A plea for exercise in pure air is only a plea for sound development.

PLACENTA PREVIA—A PLEA FOR THE MOTHER.*

By J. A. OWEN, M. D., Turbeville, Va.

There is scarcely a physician who has been engaged in general practice for five years or more who has not at some time encountered this most alarming and highly fatal obstetrical anomaly. There are few instances in our varied experiences where we are confronted with such grave conditions, and in which cool judgment and definite and intelligent action are so urgently needed; rarely does so much depend upon what one does or does not do.

Placenta previa is the development of the placenta in the zone of dilatation of the uterus. For practical purposes it may be classified as complete or incomplete, according as the os is completely or partially covered by the attachment of the placenta.

Etiology.—The causes of this condition are largely theoretical, but subinvolution and endometritis causing the ovum to descend to the lower uterine segment before finding lodgment, low insertion of fallopian tubes, and arrested abortion are supposed to be etiological factors. It is said to occur once in a thousand cases, on an average.

There are usually no premonitory symptoms during the early weeks of pregnancy, though false menstruation is an early symptom which should not be disregarded. Any hemorrhage, however slight, occurring before the twentieth-eight week and unaccompanied by other abortive symptoms should put us on our guard. The first intimation the patient has that anything abnormal is present is hemorrhage; this may be slight or profuse, may come on after exertion or at night, and usually is not accompanied by pains. Fatal hemorrhage is very rare before the eighth month, but slight, if persistent, hemorrhage soon renders patient weak and anemic and endangers the life of the child. While any hemorrhage should be looked upon with suspicion, other signs add much to the evidence; these are soft baggy cervix, fetus low down in pelvis, and a firm resisting ring at edge of placenta where it is attached to outer uterine wall.

The only certain sign, however, is to feel the placental tissue through the patulous os; this may be described as a peculiar stringy feel that once detected is never forgotten.

The *prognosis* of placenta previa is always grave, depending on the location and whether complete or partial, on the condition of patient, period of gestation, amount of blood lost, etc.

The fetal mortality is very high, over 50 per cent.; maternal about 25 per cent.

Mal presentation, post-partum hemorrhage, due to relaxed condition of uterus, infection, and thrombosis are frequent in this condition.

Treatment.—Schroeder of Berlin, an obstetrician of note, sounds the key-note to the treatment of placenta previa when he advises us to place the interests of the child subservient to that of the mother, observing that those who take the opposite course lose a larger number of mothers and do not save many more children.

With few exceptions every case of placenta previa demands immediate interference, and labor is to be inaugurated as soon as the diagnosis is made. The only cases in which temporizing is permissible are those with slight hemorrhage and fetus not visible, but even here patient must be sent to a well-equipped maternity with skilled assistants always at hand. The active treatment of this condition has four objects to accomplish: stopping hemorrhage, emptying the uterus, preventing post-partum hemorrhage, and combating shock and anemia.

The best method of inducing labor is puncture of the membranes with the introduction of the Barnes' rubber bags filled with water forced in by bulb syringe; this also acts as a plug to stop hemorrhage. Another very simple and almost as efficacious method is the cervical tampon of plain or iodoform gauze. The gauze should be in long strips and should be wet so as to pack tightly. As a preliminary, empty the bladder and rectum, and give vaginal douche if time permits. The tampon should be held in place by pad and T bandage. It acts to dilate cervix, check hemorrhage and stimulate contractions. It should be removed in six hours, but may be repeated if necessary. It is needless to say that the physician should not

*Read before the South Piedmont Medical Society, Danville, Va., April 19, 1910.

leave the house at this stage. With cervix dilated to admit two fingers the physician has choice of two procedures: if head is pressing against edge of placenta, checking hemorrhage, and pains are strong he may wait and see how nature will conduct the case; or, what in most cases is the safest and best method, he may do a Braxton Hicks combined version with light chloroform narcosis. After careful cleansing of hands and parts, introduce one hand through membranes towards free edge of placenta if partially detached, but if complete plunge through center. An alarming gush of blood usually follows, but this should not deter us as it is more blood-stained liquor amnii than blood. The hand is now rapidly passed up beside child's body till a foot is grasped; this is pulled down till knee protrudes at vulva. The external hand pushes head up and thus materially aids in the manipulation. With one or both feet pulled down we are masters of the situation.

And next comes what is, perhaps, the hardest thing of all to do—*wait!* Be patient; for just here more lives are lost than at any other stage. Violence may rupture the uterus, terminating fatally what we have so brilliantly attempted; or haste cause cervix to contract on the neck of the child, losing precious minutes which may mean the life of both patients. There is no longer danger of serious hemorrhage; wait for full dilatation; then allow contractions to expel after coming head, or deliver by Wigand Martin method. Keep hand on fundus, stimulate contractions, and deliver placenta by hand if not already expelled. Secure contractions with hypodermic of ergot which should be pushed to point of tolerance, an keep up for several days as fatal hemorrhage has been known (six) hours after delivery. Shock and consequent anemia deserve appropriate treatment.

I have not added anything to the methods of diagnosis or treatment; that was not my purpose, but I do urge that whenever confronted with this condition you act promptly and induce labor. With a fetal mortality of over 50 per cent., even under the best conditions, it certainly seems to me the mother's interests are paramount; for when the life of the mother is jeopardized by the infant the rights of the latter cease to exist.

In conclusion, I wish to quote the concluding paragraph of Wilmer Krusen's article on "Therapeutic Abortion; with Consideration of the Rights of the Unborn Infant" in March *Therapeutic Gazette* as follows: "No consideration other than the preservation of the one life must now appeal to us; and having so determined, without fear of criticism, openly, courageously, carefully and conscientiously must we protect the important existing individual by therapeutic abortion. Let every man confronted by this problem place himself either in the position of the patient, of the husband, or of those who are near kin to her. Our theories will vanish, our subtle sophistries become coldly cruel, and the sanctity and salvation of the home become of transcendent importance."

Proceedings of Societies, Etc.

THE AMERICAN PROCTOLOGIC SOCIETY

Held its twelfth annual meeting at St. Louis, Mo., June 6 and 7, 1910. The President, Dr. Dwight H. Murray, of Syracuse, N. Y., in the chair.

Officers elected for the ensuing year: President, George J. Cook, M. D., Indianapolis, Ind.; Vice-President. Jerome M. Lynch, M. D., New York City, N. Y.; Secretary-Treasurer, Lewis H. Adler, Jr., M. D., Philadelphia, Pa.

Executive Council—Dwight H. Murray, M. D., Syracuse, N. Y., Chairman; George J. Cook, M. D.. Indianapolis, Ind.; Louis J. Hirschman, M. D., Detroit, Mich.; Lewis H. Adler, Jr., M. D., Philadelphia, Pa,

The place of meeting for 1911 will be at Los Angeles, Cal., and the exact date and headquarters will be announced later.

The following were elected Honorary Fellows: Mr. F. Swinford Edwards, Mr. W. W., Wallis and Mr. P. Lockhart Mummery and Mr. W. Ernest Miles, all of London, England.

The following were elected active Fellows of the society: Drs. Horace Samuel Heath, Denver, Col.; Stanley G. Zinke, Leavenworth, Kan., and Granville S. Hanes, Louisville, Ky.

The following is an abstract of the principal papers read:

President's Address—Undergraduate Proctology.

By DWIGHT H. MURRAY, M. D., Syracuse, N. Y.

After thanking the society for the honor conferred upon him in making him President, he

made some recommendations as to its future before taking up the formal subject of his address.

He considered that the American Proctologic Society stood for a high class of scientific work and the best that there is in proctology. He believed that it would be for the best interests of the society that the programs of future meetings should be made up of a symposium, or possibly two, with essays that shall treat thoroughly some selected subject, or subjects, and that these papers should be writtten by men whose part in the symposium should be assigned to them by the executive committee. He suggested that the program should not be too crowded and that sufficient time should be given for a full discussion of every paper and subject presented.

He believed that a volume or year-book of the American Proctologic Society containing a symposium with additional papers of merit, such as would be presented by experts in proctology, could be made of great value to the profession and would be sought after by general practitioners. He believed that it was of the utmost importance to the society that the transactions be published yearly, as it would be a decided step backward to omit the publication, no matter what its cost might be.

A recommendation was also made regarding the limitations of the field of the proctologist. He believed it to be true that the *ethical* practice of proctology was too narrow a field in which the specialist could gain a competence. He, therefore, recommended that this society take up the question of the limit of proctology as a specialty and that it be changed to include diseases of the small intestines—in other words, that proctologists become procto-enterologists, and in this way every member of the specialty would be doing uniform work.

He then proceeded to take up the main subject of his address, "Undergraduate Proctology." He believed that the specialty was rapidly assuming the importance which is its due, in spite of the opposition it has experienced from the general surgeons who have seemed to look upon it as an unwelcome invasion of their field.

He considered that one of the most important duties of the Proctologic Society was an educational one. He hoped that with the increasing appreciation and demand for this kind of special work that the colleges would take up the subject in a manner which its importance demands, and that if the medical colleges did not educate the profession in this branch of medicine, the members of the Proctologic Society must do it. He put forth the claim that the field of medicine and surgery is too large to admit of any man becoming an expert in all branches. This is an age of specialists, and the very limitations of a specialist make an expert of him.

He believed that proctologic teaching in colleges should be done by men learned in the specialty and not by general surgeons who only teach in a desultory manner, so that when the students are graduated they go forth to the practice of their profession in fully 75 per cent. of the cases with little or no knowledge of this line of work.

He then proceeded to prove this point by a statistical report showing the answers to questions which he propounded in a communication to fifty of the most prominent colleges in the United States and Canada. The answers to those questions show conclusively that a very large percentage of the college faculties believe that proctology is of minor importance and that it is not necessary to give the student any special training in the subject.

In order to prove this point he found it necessary to communicate with a large number of physicians, including specialists in various branches and men who had graduated during the years from 1873 to 1905. He sent communications to these men asking them to answer certain questions which would show whether they believed they would have been better prepared for their practice and have been better able to treat their patients if they had been given instructions in this line of work. Ninety per cent. of the physicians answered the questions in the affirmative, which he believed told the story from the standpoint of the physician. This gave him good comparison from the standpoint of the college faculty on one hand, who feel that they know the subjects in which the student should be trained at the beginning of his life work, and from the standpoint of the physician on the other hand who is in the midst of his life work. These answers show that physicians believe that col-

leges should devote less time to major things in specialties and surgery, and instead give their students more definite and practical instruction in proctology.

Dr. Murray then presented the questions and answers from the college faculties and physicians in tabulated form. He did not claim that the work of the eye, ear, nose and throat or of any of the specialties was unimportant, but he did maintain that the time given to these specialties should be shared in a proper way with proctology, which would not detract from the importance of the older specialty, but would recognize the importance of proctology. At the same time this would put the young graduate in possession of knowledge that would not only be of great value to him, but of far greater value to his patients. There are certain common and important diseases in every specialty that the young physician is sure to meet and ought to be able to recognize.

He believed it to be the duty of the American Proctologic Society to foster a sentiment in the profession and among college authorities favorable to the special teaching of proctology, either separately or as a branch of general surgery. He did not deem it necessary that a special chair of proctology should be created, but that a course in proctology should be provided for under the hair of general surgery.

Dr. Murray believed that it would be wise for the American Proctologic Society to offer a prize of a substantial sum of money for the best original graduating thesis on a proctologic subject, the competition to be open to graduating classes of any college in the United States and Canada.

In conclusion, the author believed that the profession should offer more encouragement to specialties in all branches, especially to those who are willing to devote their time to a branch which has for some reason been neglected, as proctology has been. Then it would be practically impossible for quacks and healers of various sects and isms to take advantage of our professional neglect and use it as their opportunity to play upon the credulity and gullibility of human nature.

Review of Proctologic Literature from March, 1909, to March, 1910.

By SAMUEL T. EARLE, M. D., Baltimore, Md.

The Committee on Proctologic Literature reviewed the following papers as worthy of the attention of the members of the Proctologic Society:

"The Treatment of Hemorrhoids by Zinc-Mercury Ionization," by Dr. T. J. Bokeham, which appeared in the *Proceedings of the Royal Society of Medicine,* May, 1909, p. 135.

A paper by Dr. Herman A. Brav in the *Monthly Cyclopedia and Bulletin,* May, 1909, p. 268. "The Importance of Careful Post-Operative Treatment in Rectal Operations."

A paper from the *Albany Medical Annals,* May, 1909, Vol. XXX., by Dr. George Blumer, New Haven, Conn. "A Neglected Rectal Sign of Value in the Diagnosis and Prognosis of Obscure Malignant and Inflammatory Diseases Within the Abdomen." The sign is spoken of as the rectal shelf, and is observed on making a digital examination of the rectum on the anterior rectal wall, from two to four centimeters above the prostate gland in males. This shelf is of almost cartilaginous feel and projects into the rectal cavity. In some cases the circumference of the rectum is involved in an annular zone of infiltration, more marked anteriorly, and tapering off toward the posterior wall, a signet ring stricture, as Schnitzler calls it. The summary of his paper is contained in the following:

1. In certain forms of carcinoma of the abdominal organs, notably gastric carcinoma, and in some cases of tubercular peritonitis, implantation metastases in Douglas' pouch are common.

2. These metastases impigne upon the rectum and may infiltrate its submucosa, causing a peculiar shelf-like tumor on the anterior rectal wall, readily felt by the examining finger.

3. In cases of gastric carcinoma this may be an early metastasis, and occurs especially in males.

4. In such cases the primary tumor may be latent, and the metastasis may be large enough to cause symptoms of obstruction. It has been mistaken at times for rectal carcinoma and has been removed as such.

5. The not infrequent occurence of this rectal shelf makes it a diagnostic and prognostic sign of a good deal of importance, and warrants the statement that in no case of obscure abdominal disease should a rectal examination be omitted.

Dr. W. I. DeC. Wheeler, in the *London Lancet,* March 6, 1909, gives excellent reasons for always using the abdominal route, or a combined method, for excision of carcinoma of the rectum whenever the malignant growth is three inches or more above the sphincter.

The technic for Excision of the Rectum in Procidentia, as given by Dr. John H. Cunningham, Jr., Boston, Mass., *Annals of Surgery,* May, 1909, is referred to and favorably commented upon.

Dr. A. L. Wolbarst's improved rectal irrigating tube is referred to. A description of the instrument may be found in the *Journal of the American Medical Association,* July 31, 1909.

Malformations of the Anus and Rectum—Report of Four Cases.

By ALOIS B. GRAHAM, A. M., M. D., Indianapolis, Ind.

Congenital malformations demand prompt surgical treatment. Many cases are never reported and the percentage is evidently much larger than statistics indicate. These malformations are sufficiently uncommon and interesting to warrant placing every case on record. Report of four cases:

Case 1.—White male child, born with no trace of an anus and in whom careful dissection and exploration failed to find any trace of a rectum. Colostomy was suggested but the parents refused their consent. Child died four days later. Autopsy refused.

Case 2.—Colored male child, age 5 years, born with a complete obstruction of the anus by a membranous diaphragm, which was perforated by the attending physician. Examination revealed a dense stricture, almost impermeable, involving the entire anal canal. The interesting point was the presence of a hypospadias through which feces had escaped for two years. The communication between the rectum and urethra was the result of ulcerations above the stricture rather than defective embryological development. Surgical treatment was refused.

Case 3.—Colored female child, 56 days, in whom examination revealed a well-formed anus and a protruding or bulging imperforate rectum. A photograph shows a pronounced distention of the abdomen, the result of a 56-days' intestinal obstruction. Posteriorly, the rectum had no attachments and the finger could be introduced easily behind the bulging imperforate gut, through the anal canal, into a blind pouch. A fistulous opening was found in the vagina just behind the hymen. The meconium and a small quantity of feces had escaped through this opening. The protruding rectal mucosa was dissected from its attachments and excised. The rectal mucosa was then sutured to the free skin at the anal margin, except for one-eighth of an inch posteriorly. This was used for drainage in case the blind pouch became infected. This patient made a good recovery. At the last examination, which was three months following operation, the finger could be introduced easily into the rectum, the stools were normal and sphincteric control was good. The fistulous opening into the vagina was closed, and the posterior rectal mucosa was firmly united to the skin at the anal margin. With the exception of an abdomen which seemed to be a trifle prominent for one of its age, the child appeared normal.

Case 4.—White child, one of twins, age 42 hours, in whom examination revealed an imperforate urethra and no trace of an anus. Penis and scrotum were well developed, but neither testicle could be palpated. Careful dissection and exploration failed to find any trace of a rectum. A two-inch incision was made in the median line just above the pubis, but no bladder could be found. Decided to perform a colostomy or sigmoidostomy. A portion of what was supposed to be the sigmoid was opened and a large quantity of meconium escaped. Exploration revealed a pouch which appeared of much larger dimensions than a normal colon or sigmoid should be. Operation was completed, and yet our inability to find the bladder made the case a hopeless one. Child died twenty-four hours later. At autopsy no bladder was found. The entire large intestine was removed. This case is of interest from the point of view of defective development. The pouch-like termination of the intestine might well be termed a monstrosity. The writer is inclined to believe that it is one of those rare cases in which the colon or sigmoid opens into the uterus. While the local examination revealed a male child, with the exception of being able to palpate the testicles, the examination of the specimen removed at autopsy reveals marked evidence of the female generative organs. This child was a transverse herma-

phrodite—namely, one in whom the external genitals seem to be of one sex and the internal of the other. Report of examination of specimen states that the pouch-like termination of the intestine is formed of three organs—namely, the bladder, uterus and rectum. Specimen was shown.

Analyses, Selections, Etc.

Diabetes Mellitus—Sympathetic Neuroses, Rationally Treated with Electricity.

In a paper by J. Monroe Liebermann, M. D., of New York City, read before the Tri-State Medical Association of the Carolinas and Virginia, at Richmond, Va., February 15-17, 1910, the author reviewed up-to-date the physiological and chemical experiments in diabetes mellitus and the anatomical relationship of the sympathetic nervous system, and summed up by saying that from the aforesaid review of the subject we know that glycosuria following the hyperæmia of the surrounding vessels of the liver is induced either (1) by injury or irritation of some nerve of the cerebro-spinal system that stands in direct or indirect communication with the filaments or ganglia of the sympathetic system; or (2) by injury or irritation of the filaments or ganglia of the sympathetic system direct.

From this standpoint, he then reasons that if we can relieve the hyperæmia so induced, we will restore the physiological balance and correct the function of that part of the nervous system which induced the hyperæmia.

He then claims that from all therapeutic measures used by him in diabetes mellitus within the last quarter of a century of private practice, he found the high potential and high frequency currents the most valuable, this treatment having been followed for the last six years with good results in a large number of cases.

He finds that pathological changes under this treatment take place so rapidly that it is often astonishing to both patient and healer.

For the last six years he abolished the carbohydrate-free diet theory and prefers for his patients a good nutritive mixed diet, with instructions to masticate the food thoroughly, and to partake rather six small meals than two or three big ones.

He reports that out of 144, there were but 62 cases without definite results, and this, he claims, is due mostly to negligence and lack of attendance on the part of the patients. And although a majority of the 62 cases had been treated for only a short period—from three weeks to three months—a large number of these were benefited, showing a diminution in percentage of sugar, decided relief in polyuria, excessive thirst and hunger.

He also presents a test for locating the seat of the irritating cause, which he calls the "spinal test," based upon the reflex action of the sympathetic and spinal nerves. He uses this in diabetes mellitus as well as in other nervous diseases. After describing the application of this test he cites three cases showing the results. He admits that the test is not up to perfection and needs improvement, but is of great value to clear up some obscure diagnosis in nervous diseases.

He finally cites more cases and concludes by saying that diabetes mellitus should be placed on the list of curable diseases. Complications, such as nervous, pulmonary, thoracic, digestive and genitro-urinary, should be treated secondary to diabetes. The knife should not be used in this disease. Electricity is nature's own remedy in diabetes mellitus, and the sooner applied, the quicker the result. But the one who applies it *must* be one who thoroughly understands its potentiality and its modality.

Book Notices.

American Practice of Surgery. Editors JOSEPH D. BRYANT, M. D., LL. D.; ALBERT H. BUCK, M. D. Complete in Eight Volumes. Proposely illustrated. Volume III. New York. William Wood & Co. 1910. Large 8vo. 961 pages. Cloth, $7.

As shown on title page, one more volume is yet due to complete this great "system of the Science and Art of Surgery by Representative Surgeons of the United States and Canada." Volume VII. before us continues on *Regional Surgery,* considering surgical diseases and wounds of the pelvic and gluteal regions; of the extremities; of the abdominal wall; diagnosis of tumors of the abdomen; abdominal section; surgery of the pericardium, heart and blood vessels; surgical diseases and wounds of

the stomach and œsophagus; of the diaphragm and subphrenic abscess; surgical treatment of infectious peritonitis; tuberculous peritonitis; abdominal hernia; inflammatory and other diseases of the vermiform appendix; surgical diseases and wounds of the intestines, omentum and mesentery; and surgical diseases of the anus and rectum. We regret that want of space forbids further notice of this most excellent volume, other than to give the contents, as above.

Editorial.

Suits Against Illegal Practitioners.

We are pleased to note in the last number of the *Journal of the South Carolina Medical Association* the determined way in which one of its County Medical Societies has gone to work to prosecute illegal practitioners of medicine in that section. The Secretary of the society above mentioned says "This is just the beginning of a series of suits to rid the county, if possible, of such practices."

Dr. Herbert Old, of Norfolk, Va., a member of the Virginia State Board of Medical Examiners, early last spring brought indictments against two men practicing illegally in Norfolk, mention of which was at that time made in this journal.

If doctors and societies throughout the country could oftener bring themselves to the point of prosecuting this class of fakirs, who so strongly appeal through their cut rates and impossible promises to a large class of our people, we believe the results accomplished in forcing such impostors to change their methods, or retire from the field entirely, would be amazing.

The American Public Health Association,

Whose membership is composed of representative men from all parts of the United States, Canada, Mexico and Cuba, will hold its thirty-eighth annual meeting at Milwaukee, Wis., September 5-9, 1910. One of the prineipal subjects for discussion is to be *Sanitary Engineering.*

Dr. Bading, Chairman of the Local Committee of Arrangements, suggests a pleasant itinerary for members en route to the meeting, so that they may include the pleasure of a day and a half at the famous resort of historical interest —Mackinac Island. For further information, address Dr. G. A. Bading, of Milwaukee, or Dr. Wm. C. Woodward, Secretary of the Association, of Washington, D. C.

The American Association for Study and Prevention of Infant Mortality

Has issued the preliminary announcements of its annual meeting to be held in Baltimore, Md., November 9-11, 1910. For information, write Miss Gertrude B. Knipp, Executive Secretary, Medical and Chirurgical Faculty Building, Baltimore. Dr. J. H. Mason Knox, Jr., of Baltimore, is President, and Dr. Linnaeus E. La Fetra, of New York City, Secretary. The meeting will open with a general session on the 9th, while four special sessions will be held on the two following days.

The Hygeia Hospital, Richmond,

Of which Dr. J. Allison Hodges is Physician-in-Chief, after the usual vacation of staff and nurses during the summer, will re-open September the first for the Fall Season. In connection with the Hygeia, a suburban annex —Rest-a-Bit—has been secured, which will be open throughout the whole year, and under the same management. Dr. Fred M. Hodges, of the University of Pennsylvania, will be an addition to the present medical staff.

Dr. Wm. G. Christian.

The Medical College of Virginia is to be congratulated upon securing Dr. Christian, well-known as one of the foremost anatomists of the country, as professor of that branch for the coming session. He gained especial prominence in this subject while teaching at the University of Virginia, and since his resignation from that institution, has been residiug in Gordonsville, Va.

We are glad to welcome Dr. Christian to our midst.

Dr. Wallace Deane Carr,

Who for the past year has been connected with the staff of the Gouveneur Hospital, New York, has returned to Richmond, Va., and will be associated in practice with Dr. Edward Me-

Guire, taking charge of the latter's practice during his absence abroad. Dr. Carr was a graduate of the University College of Medicine in the class of 1908, and his many friends will be glad to welcome him home.

Dr. G. Chambers Woodson

And Miss Lillian A. Burger, both of Richmond, Va., were married July 19, 1910, in Baltimore, Md. Dr. Woodson graduated from the University College of Medicine in 1907, at which time he was appointed one of the internes to the City Home, Richmond. Upon completion of his term of service with this hospital he located in Richmond, and is a member of his State and local societies.

St. Luke's Hospital, Richmond,

Will be closed for a month and a half, beginning the first of August, during which time, changes will be made in the hospital and present Nurses' Home, looking to the accommodation of a larger number of patients. Dr. Stuart McGuire, surgeon-in-chief, will be enjoying a vacation abroad for most of this time.

Dr. Hugh McGuire,

Of Alexandria, Va., sailed late in July to spend a vacation abroad.

Errata.

Dr. Clarence Porter Jones, of Newport News, Va., desires to correct a stenographic error in his article, page 170, July 22nd issue of this journal. The (a) section should have read as follows:

(a) *"Differential diagnosis between furunculosis in the external auditory canal and acute otitis media.*—Each malady has several symptoms in common—violent pain in the head, ear, throat and teeth, increased by pressure on the tragus and angle of the jaw. Also elevation of temperature.

"The important differential points are severe pain on traction and rotation of the auricle; also on chewing and yawning. There are usually no changes in the drumhead, no impairment of hearing (except such as is due to occlusion of the canal from swelling). Swelling on the outer or cartilaginous portion of the canal, usually limited to the inferior wall, though may involve the entire canal—in furunculosis.

"Redness of the drum, and bulging at its superior quadrant, as a rule; swelling of the posterior superior canal wall, in the deeper or osseous portion occasionally occurs—in otitis media. This swelling is due to pus under pressure (reflex) within the mastoid antrum, and always calls for prompt operative interference."

Location Wanted---Physician of good standing desires to change his location, and will purchase or rent property with practice. Address *"Physician,"* care Virginia Medical Semi-Monthly.

Obituary Record.

Dr. George B. Jennings,

Who died at his home in Ruckersville, Va., August the second, was born in Rockingham county, Virginia, June 1, 1838. Upon finishing his academic education, he entered the Medical College of Virginia, from which he graduated in medicine in 1860. Dr. Jennings had for many years been a member of the Medical Society of Virginia, and was one of its vice-presidents in 1879. In addition to being one of the best known practitioners in the State, the doctor stood high in Masonic circles, and was prominently identified with educational affairs in his section, having been superintendent of schools of Greene county for the past twelve years. His wife, and four children survive him.

Dr. Frank Camm

Died on August 5th at his home in Lynchburg, Va., in the sixty-third year of his age. He was born in Manchester, Va. After an academic education at William and Mary College, he studied medicine at the Universities of Virginia and Maryland, graduating from the last named institution in 1885. Dr. Camm, who was a well-known physician and prominently identified with medical interests in the State, had been a member of the Medical Society of Virginia since 1886, was a Mason, Pythian, for many years actively connected with the military in his home town, and served as surgeon through the Spanish-American war. He was unmarried.

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Original Communications.

POLIOMYELITIS—APROPOS OF THE SPREAD SOUTHWARD OF THIS DISEASE—RECENT RESEARCHES—FALLACIES IN DIAGNOSIS—MISCONCEPTIONS ABOUT TREATMENT.

By TOM A. WILLIAMS, M. B., C. M. (Edinr.), Washington, D. C.

Memb. Corresp. Soc. de Neurol. de Paris; M. Corresp. Soc. de Psychol. de Paris; of Assoc. de la Soc. de Med. Ment. Clin.; Neurologist to the Epiphany Free Dispensary.

This disease, the unusual prevalence of which caused so much alarm in New York and New England since 1907, and even before, has this year become epidemic as far South as Washington and seems likely to extend still further.

As investigations more extensive than any of those in the past have recently been conducted, not only in this country, but abroad, and as the writer finds much uncertainty as to the results of these among medical men by whom he has been consulted, it seems wise to present a short statement of some important facts about the disease. In order to prevent its spread the co-operation of the general practitioner is imperative, as was long ago found out by the Scandinavian Government Research Bureaus. In those countries, upon application, a diagnostician or pathologist is sent to any reported case, and a concerted effort is made by these traveling specialists to instruct practitioners in the special technique which has been adopted for the research of data, both ante and post-mortem.

Etiology.—In New York a joint committee of the Neurological and Pediatrical Societies attempted a statistical investigation of 2,000 (estimated) cases, of which 750 were analysed. They concluded that the disease was infectious but not contagious; that it was more fatal to life than commonly supposed, and that complete recoveries without paralysis were not so unusual as had been believed. In many cases the disease behaved like other infections and the general symptoms were often as prominent as the paralysis. The brain stem might be involved but there were very few cases of encephalitis. Early meningitis, however, was very frequent.

Only two cases occurred in negroes. The epidemic began in June and was at its height in September, the country cases beginning later. One epidemic spread along a trolley line. (Massachusetts). Poor and rich were alike affected and the incidence seemed proportional to population. The communicability equaled that of cerebro-spinal meningitis. Relative immunity seemed to follow an epidemic. In the Massachusetts epidemic evidence of contagion presented in 17 per cent. of cases.

The diarrhea, which many authors believe important was not prevalent (14 per cent.), constipation being as frequent. There was respiratory catarrh in 84 cases, of which 45 showed sore throat. Only 21 cases showed gastro-enteritis within two weeks before onset. Forty-two per cent. of the 283 cases under 2 years were at the breast; this seems to eliminate food infection. Many cases showed no prodromata.

Symptoms.—The more frequently mentioned symptoms were restlessness, irritability, apathy, pain in back and limbs; pyrexia was absent in only 61 cases. In 111 cases the fever lasted over a week—its usual duration being two or three days. Vomiting occurred in nearly 25 per cent. Rigor occurred in 61.

Of the *nervous symptoms,* restlessness was the most frequent; it occurred in 369 cases; headache in 162 cases; delirium, 62 cases; convulsions, 51 cases; twitching, 8 cases; apathy

I need not go into detail to refute the exaggerated claims made by the newspapers concerning a special form of massage employed in New Jersey, for it has no special validity beyond the glorification of those concerned in the eyes of the ill-informed.

occurred in 294 cases; stupor in 71 cases. Rigidity of the neck was reported in 121 cases. This, of course, indicates meningeal irritation, and is clinically very hard to differentiate from cerebro-spinál meningitis. Meningeal irritation is also indicated by the pain and tenderness. This occurred in 58 per cent. of the cases for a day or two, and in 50 per cent. was quite marked, and in some of the cases excruciating. It was most frequent in the lower limbs and next in the trunk. There was skin eruption in 61 cases. Papules were the commonest, and they often covered the whole body; the significance of this has yet to be explained, as in Norway only one case occurred.

The invasion of the nerve centres is usually simultaneous, and in more than a quarter of the cases was complete the first day, and in 90 per cent. before the third day. Although the paralysis is well known to be a flaccid one, rigidity preceded the relaxation in 38 cases of the New York epidemic. This again is indicative of meningeal irritation. Not only could the muscles of the limbs be affected, but those also of respiration, deglutition, speech, ocular movements and the bladder and rectum.

The *pathological conclusions* of the New York committee were as followss

1. That in poliomyelitis acuta there were both interstitial and parenchymatous lesions, but that the interstitial were of fundamental importance and the latter secondary.

2. That the ganglion cells were affected only when in contact with the interstitial process.

3. That the interstitial process was dependent upon the vessels for its character and localization.

(See Flexner's views on the lymphatics as vehicles.)

4. That the lesion, while generally most marked in the anterior horns, was not confined to that portion of the grey matter, and hence the word "anterior" should not be used to designate the condition.

5. That the white matter of the cord was the seat of inflammatory changes of minor importance.

6. That the spinal infiltration was the essential element in the disease, and might be the origin of the infective agent.

7. That the involvement of the medulla, pons and basal ganglia always occurred in the fatal cases, though clinical experience in the last epidemic had shown that such involvement did not mean a fatal issue necessaarily.

8. That in striking contrast to the cord, the ganglion cells in the medulla, pons and basal ganglia, even when near infiltration zones, escaped serious alteration.

9. That the brain cortex may show evidences of vascular irritation and sometimes infiltration.

10. That the edema which is present plays an important role in explaining the transitory nature of the symtoms in the non-fatal cases.

11. That the predominating role ascribed to the central artery by previous observers was unjustifiable.

12. That there was no evidence of thrombosis.

13. That apparently the infective agent may affect any part of the brain-stem in its initial lesion.

14. That it could not be determined from a study of the pathological histology whether the infection had a hematogenous or lymphogenous origin.

15. That while the central nervous system was the seat of the principal lesion in poliomyelitis acuta, changes in the internal organs of the body pointed to a general infection.

16. That the acute inflammation of the lymph apparatus connected with the intestinal tract might indicate the path of entrance of the infective agent.

Precautions Against Infection.—Much fear has been created by the newspaper accounts of this disease. In consequence of the alarmist attitude adopted in these, many people have taken their children away from what they believe to be infected areas. This attitude is quite unjustifiable, for reports of cases in the country districts are reaching me in considerable numbers; so that a child is perhaps as likely to contract the disease at country or seaside as in town, the number of cases being generally proportional to population. Until the method of contagion is discovered, we do not know what precautions to adopt, but it might be prudent to restrict contact with other children, more especially in such frequented places as moving picture shows, nickel and dime theatres, churches, camp meetings, crowded seaside boarding houses and perhaps public playgrounds for general principles tell us that crowding favors contagion. But these are counsels of perfection and I do

not advocate their adoption or the closing of the schools on account of the disease, the incidence of which is comparatively small and the mortality minimal.

Shaffer has recently suggested that the avenue of infection is by abrasions in the skin.

RESEARCHES INTO ETIOLOGY AT THE ROCKEFELLER INSTITUTE OF PREVENTIVE MEDICINE.

In 1907 there was a severe epidemic of poliomyelitis anterior acuta along the seaboard of New England. As a result there were many deaths and over a thousand cases are now permanently crippled. Dr. Flexner and his associates had access to a large number of cases and made numerous attempts to transmit the disease to monkeys by the inoculation of the subarachnoid fluid obtained by lumbar puncture of patients at different stages of the disease. They failed, as they had previously done with other laboratory animals. But the non-transmissibility of the disease by this means made it probable that no ordinary bacterium was responsible for it.

In 1909 there was a less extensive epidemic; it was more local, and there were only a few hundred cases. This time the Rockefeller Institute succeeded in obtaining material from the central nervous system of two patients who died. One of these children, a case of average severity as regards the paralysis, died on the seventh day, and from it they succeeded in obtaining one inch of the lumbar cord. From a severe case which died on the fourth day they obtained the whole cord, but in both cases the brain was refused.

From this material Drs. Lewis and Flexner have inoculated eleven series of monkeys and the virus has in no way diminished in potency. The animals are susceptible, whether the virus is introduced into the central nervous system or by the subcutaneous, peritoneal or intravenous route. Injection down the trachea has not, however, yet produced the disease. The lesions are always in the same locality—that is, spinal ganglia and roots and the meninges covering them—and rarely in the cerebrum. The lesions tend to preponderate low down. Of the 81 cases, the legs were affected in 40, both legs in 20, all four limbs in 10, the arm in 31, and the neck alone in one case, although it was often implicated along with other regions. In only eight cases were the bulb and cortex affected, and in these facial paralysis was the feature.

It is a blood vascular disease apparently, not traveling by lymph channels, except that the glands in the neighborhood of the subcutaneous inoculation become inflamed, but they never do so except in the neighborhood, and never at all after internal inoculation. Moreover, little virus is found in the spleen, liver or bone marrow. Even the blood is of low virulence, and that only early in the disease.

Nature of Virus.—It is very active; invisible, even by special illumination, and is not arrested by the finest filter. So far no one has succeeded in staining or cultivating it, unless a transmissible cloudiness in certain media may be regarded as a culture. At all events, these cultures do not transmit the disease, thus differing from the invisible organism of pleuro-pneumonia. The question arises whether or not it is a saprophyte, for, so far, no invisible one is known. May it not be a bacterium, after all, for it resists thirty days at 2c.? Drying for seven days over caustic potash does not diminish its virulence, nor does admixture with glycerine. It even resists 5 per cent. phenol. Numerous suspensions in water, and long keeping does not render it inactive, though it is sensitive to heat, becoming inert at 45c.

Transmission.—It shows many analogies with the diplococcus intracellularis; and Flexner believes that both organisms enter and leave the body via the nares, the cribriform plate and the cerebro-spinal fluid. It will be recollected that he proves this with regard to the Weichselbaum coccus by introducing cultures low into the theca vertebrâlis and later finding the organism in the monkey's nares, and he has now found that at one stage of poliomyelitis the cerebro-spinal fluid does show virulence and suggests this route as worth inquiry.* In this connection recent work of Livaditi at the Pasteur Institute shows that the saliva is infective while still in the gland, and suggests further investigation. Flexner, however, from the character of the lesions, thinks that poliomyelitis begins in the meninges.

Immunity.—Even after a very slight attack an animal strongly resists reinoculation. This is only in conformity with the rarity of second

*Flexner has now inoculated the disease by injecting the nares with a suspension of the virus.

attacks in human beings, although there have been a few cases where, as far as clinical evidence goes, what appears to be a poliomyelitis, has occurred in persons already showing infantile paralysis. Relapses or recrudescences are perhaps less rare. Whether or not the strictly abortive attack confers immunity is another question which Flexner hopes will very soon be decided by his experiments. It can be answered both by inoculation experiments and by the results of the immunity reactions. Vaccination subcutaneously is now being used to produce active immunity, with qualified success, as paralysis sometimes occurs after vaccination. The material of this kind is still insufficient to permit report, but very soon there promises to be definite information, for several of the monkeys have manifested merely a slight general malaise without paralysis or even weakness. Those inexperienced in observing the animals might indeed have believed them in quite good health, as no fever is shown in the prodromal stage. But Flexner is unable to indicate as yet the clinical symptoms which precede the paralysis.

Incubation has varied from four to thirty-three days. The average is about eight days as in human beings. The recovery of function, as in human beings, is complete after a slight attack, but only partial when the attack is severe.

The mortality seems to be higher than in human beings—50 per cent. of the monkeys having died. As far as the as yet imperfect study of the symptoms permits, Flexner believes that Landry's ascending paralysis may be often due to this virus, as further observation will perhaps demonstrate.

It is interesting to note that although only monkeys are susceptible to this particular virus, other animals are attacked by a poliomyelitis. For instance, nervous distemper of the dog is of this nature, but pathologists have not yet succeeded in transmitting it. The poliomyelitis of chickens has not been successfully inoculated. In rabbits the Shiga bacillus causes a hemorrhagic poliomyelitis, generally cervical. So it is quite clear that there is a whole genus of organisms capable of producing this anterior horn syndrome, but it is pretty clear, too, from Flexner's researches that the human form is specific.

Pathology.—The post-mortem examination of the monkeys makes quite clear what clinicians and pathologists have for some time suspected, that the affection is not confined to the anterior horn. In the monkeys which died, inflammation was always found in the intervertebral ganglia and spinal roots. The infection seems to seat in the pia, and to spread thence via the trabeculæ into the central nervous system. Sections show a considerable small round cell infiltration of the ganglia on the spinal roots. The cells are of the mononuclear type and occur in the subarachnoid space, too; and in the cord, especially round the anterior horn, there is an abundant round cell exudate, and dilatation, enlargement and sometimes rupture of the blood vessels. This implication of the roots and ganglia explains the severe pains of which adult cases often complain. In the child, of course, the general distress often masks the local pain.

It is interesting to note that in Weichselbaum's laboratory they have also succeeded in inoculating the monkey with the virus of anterio poliomyelitis.

We may have strong hope that in a very short time the completion of these researches will provide us with a means of immunizing human beings against still another contagious disease, or at least of cutting short an attack, as is now the case in cerebro-spinal meningitis. But even if this hope is not realized, Flexner's experiments will show us the path of infection and thus furnish another means by which to prevent disease, for until now we have had to fight quite in the dark against an unknown foe, and means of prevention cannot but lack in precision under such conditions. But when we know the avenue of infection means of prevention are often found to be very simple. Even in the case of poliomyelitis, where we scarcely know the child is sick until the disease is at its worst and paralysis has occurred, a way may now be found.

Diagnosis.—The prominent features at the commencement of simple cases are the flaccidity of the affected limb, and loss of the reflexes in which the affected muscles are concerned. But there are pitfalls for the general practitioner in the exploration of these latter. I find it not unusual, especially in children, that the *reflexes* are reported to be absent when in reality the patient has suppressed the reaction by a rigid

contraction of all the muscles of the limb being explored. No observation is of value unless the limb is placed in the correct position and all the muscles are relaxed. A case of meningitis may in this way be mistaken for one of infantile paralysis, an error of diagnosis which might cost the patient's life.

Again, the transcendently important *plantar response* is often misinterpreted. When the sole of the foot is tickled or scratched the normal response often includes a rapid drawing up of the leg by flexion at hip, knee and ankle (dorsiflexion) and sometimes at toe (dorsally) as well, although the latter reaction is usually flexion, the extension which sometimes occurs being in part volitional. Now this is not Babinski's sign, although it is often so called. To elicit this a careful technique must be followed; all the muscles must be relaxed; the knee, hip and ankle passively semi-flexed, and it is best to gently hold the waist of the foot. With a brass pin in the other hand, the sole of the foot should be firmly and slowly stroked from the heel towards the toe, first on the fibular side, and if no response then on the tibial side. If the toes do not yet move, the first stroke must be repeated and continued into a broad and sweeping mesial-ward movement across the pad at the base of the toes.

Babinski's sign consists of a slow extension of the great toe, after one of these stimuli *under these conditions.*

Accessory and important signs described by the same observer are the spreading of the four outer toes (the fan sign) and the sharp contraction of the tensor fasciæ femoris muscle.

Extension of the toe sometimes recurs in meningitis, and hence its erroneous declaration may cause a serious error of diagnosis.

Difficulties of diagnosis are presented also by Kernig's sign, unusual distribution of paralysis, marked mental symptoms without paralysis, bulbar paralysis, gradual ascending or descending paralysis resembling that described by Landry, cases with encephalitis. Examination by a skilled neurologist should be sought in such difficult cases.

A condition which might be mistaken for poliomyelitis is the rare one of syphilitic pseudoparalysis.

The investigation of these epidemics shows that we must discard many old views about the early symptoms. The unsatisfactory histories and sometimes examination of dispensary cases, Holt believes, should prevent us from concluding that abortive cases are rare, and he believes that many of them are overlooked or miscalled. He believes, too, that a number of deaths from acute poliomyelitis are attributed to such causes as pneumonia, cerebrospinal meningitis, encephalitis and Landry's paralysis. Gowers, too, has insisted upon the frequency of errors of diagnosis.

On the other hand, Lovett believes that during epidemics many other diseases are called poliomyelitis.

Case.—I cite as an instance of a difficulty which any neurologist will appreciate a case seen with Dr. Copeland during this epidemic.

After one week of malaise and constipation, a girl of 4 years developed what was believed to be a sore throat, the neck being held stiff. Two days later Dr. Copeland first saw her and found clear rigidity of neck, slight Kernig's sign, a scaphoid abdomen and exaggerated patellar reflexes. The child was apathetic.

These signs of meningeal irritation created a suspicion of an invasion by the diplo-coccus intracellularis, especially as during the next four days the apathy increased to the point of unconsciousness, swallowing became more and more difficult and the respiration slowed to a threatening of failure.

There also developed a large intention-tremor of the right arm and leg, and the power of articulation disappeared.

The dysphagia led to removal to a hospital so that skilful feeding could be secured. Dr. Copeland did not ascertain whether or not it was spasm or paralysis of the pharyngeal or other muscles which prevented swallowing, but the history and other symptoms point to paralysis as the likelier cause.

During this time the patellar reflexes disappeared and poliomyelitis was suspected.

The limbs were no longer rigid; nor was there distinct flaccidity. The plantar response had not been that of Babinski.

It was two weeks after onset when I saw the child. She then showed a slight concomitant strabismus and distinct facial asymmetry, the folds upon the right side being much more distinct but there was no apparent diminution of facial movements. The neck was turned to the left and appeared to be more able to turn in that

direction against resistance than in the contrary direction.

I could detect no inequality of power in the movements of the hands and arms, neither being used very strongly; shyness or apathy may explain this. The extension of the right leg upon the thigh was distinctly weaker than that of the left side. I could detect no inequality in other movements, but none were vigorous, for the strong child she seemed.

In walking, however, progress was dysergic, more especially in the right leg; the base was widened by spreading the legs, and she tended to utilize the support of the furniture when within reach.

The reflexes were all brisk, but the force with which the right leg extended on tapping the patellar ligament was much less than that of the left. The abdominal reflexes were present, as were the plantar; but the reflex of the right foot was less complete than that of its fellow; and a wide spreading of the outer toes when the sole was stroked (the fan sign) gave clear evidence of a slight impairment of the function of the pyramidal fibres somewhere in their course.

Babinski's combined flexion sign was seen at the right groin when the child rose up to sitting posture, and when she lifted the leg from the bed the contralateral pressure on the right heel was less than when the left one pressed on the bed.

The mother reports that the child has lost her cheerfulness and is both apathetic and querulous.

I explain these symptoms as the result of an invasion by the causative virus of poliomyelitis affecting mainly the region of medulla oblongata and pons varolii.

The Course and Treatment.—Wickman reports 10 per cent. mortality in the Scandinavian epidemic. In the New York epidemic about 6 per cent. recovered completely, while in 86 per cent. some paralysis remained. The deaths of reported cases were infrequent, but it is likely that many cases died without diagnosis. During the active stage, rest and light diet are the most important needs. Drugs are not indicated and the general treatment of fever should be followed.

The indications for treatment of the paralyzed muscles are:

(1) To aid the rapid absorption of the inflammatory exudate in and around the central nervous system. Potassium iodide is generally recommended for its deobstruent effect. It is possible that some more active fibrolytic might here find a use, but I am not aware of its trial.

(2) To favor regeneration of the nerve elements by good nutrition.

(3) Most important is it to maintain the life of the muscles of which the function and nutrition are interfered with by destruction of their neurones in the anterior horn of the spinal cord, including their axonal prolongation into peripheral motor nerve. There is much misapprehension concerning the means of doing this. Vibration, massage, passive movements and hydrotherapy are quite secondary in importance to direct stimulation of muscle contractility by *galvanic electricity.* This is the only means which will keep alive the myotomes during the course of regeneration of their nerves. As those of which the cells are entirely destroyed will never regenerate, it is impossible at first to predict the amount of voluntary muscle which will remain to the patient, but it is our duty to keep alive the whole muscle in the hope that when exudate and edema subside, there will remain sufficient innervation to give useful movements.

Degeneration of nerve is well begun within three days, and at the end of ten days is decided. Regeneration is a matter of months. Hence, electrical stimulation should be begun early, contrary to a very general notion, which has confused the contra-indications of irritative conditions of the nerves with the indications just outlined. Galvanism to the muscles can have no possibile irritating effect upon the inflammatory area in the spinal cord, and it should be begun immediately the fever subsides and the patient's general state is such as to permit of its employment without causing perturbation of the mind. Indeed, in my experience it has a soothing effect in preventing muscle ache and joint stiffness.

(4) Prevention and correction of deformation.

It is most important from the very beginning to prevent contracture and malposition. Were this done much orthopedic surgery could be dispensed with.

Preventive Inoculation.—Efforts at preventive and curative inoculation are being made

in the laboratories of the Pasteur Institute, of the Rockefeller Institute, and in the laboratory of Weichselbaum. The results of Livaditi are so far the most promising. He, too, has discovered what resembles an organism by centrifugalizing and diluting the precipitate, which is then stained by Löffler's method. It occurs in large numbers as an extremely small, round or slightly oval diplo- or staphylococcus. With the Giemsa method, what appeared to be nuclei are shown in blue. These bodies differ from those found in control cultures.

The preventive inoculation used by Livaditi is performed with the dried spinal-cord of infected animals. This substance is virulent when intracerebrally injected. Heating to 56 destroys the vaccine.

Hexamethylamine by the mouth is now given by Dr. Starr as a routine on account of the fact that it is excreted into the cerebro-spinal sac.

The New York committee lay great stress upon the prolonged and frequent *hot bath* in the treatment not only of the acute and painful stage, but during the time when feeble attempts are being made by the little patient to move his paralysed muscles. The bath should be at least twelve inches deep, the temperature 100F., gradually increased not above 104F. At least fifteen minutes should be spent in it three or four times a day and the bath should not be permitted to cool. After the bath, the child should be dried in bed while wrapped in a blanket. The committee has no doubt that the baths both promote sleep and relieve pain by preventing tension upon the muscles and joints. Not only so, but it is much less painful to straighten flexed limbs while they are warm and suspended in the bath. Again, the perfectly equal support of the limbs while floating in water makes possible voluntary movements which cannot be performed while the weight of the limb has to be overcome. In a child, it is particularly difficult to excite voluntary effort against drag or discomfort.

A systematic method of exercises while in the bath must be devised, and these must be made into a game, so that the child's interest may be enlisted. Each case will require different exercises in accordance with the incidence of the paralysis.

The *psychic factor* is of the greatest importance in this part of the management of the case. Later on, too, one must not neglect the reticence and tendency to diffidence which the disability may foster in the child. On the other hand, exaction and selfishness must be guarded against. Stories of great men who have overcome physical infirmities are of great help. A small country town is perhaps the best environment for such people, whose range of occupation is not so limited as one at first supposes. If it is necessary to turn to a purely intellectual pursuit tuberculosis must be obviated by specially devised exercises and as much open air as possible; cramped positions must be avoided.

Locomotion is often possible by means of a rolling platform, modified roller skates or something of the kind, for every encouragement must be given to the use of each shred of muscle tissue spared.

Besides the psychic factor, a great obstacle to muscle contraction is stretching of the muscle fibres by contracture of the antagonists from the permitting of incorrect postures. These can be overcome in the first stages in the bath and later on by gentle massage, bandaging and apparatus.

My experience shows, contrary to the belief of this committee, that *galvanic electricity,* so far from irritating and increasing pain actually *sooths and relieves pain;* so that after its application an extended position, which before was intolerable, is for a while comparatively easy of achievement. This apparent discrepancy of experience is perhaps due to the great imprecision with which have been reported to the New York committee the manner of application of electrical treatment and the period of the disease at which it has been applied.

For the detailed account of some exercises which have been employed, and for the further details as to pathology, epidemiology, etc., of poliomyelitis as revealed by recent researches, I must refer the reader to the report of the New York committee, published as No. 6 of the Nervous and Mental Monograph Series, the monograph of Wickman (Berlin, 1907), the recent publications of the Rockefeller Institute for Preventive Medicine, and those of Livaditi in the transactions of the Biological Society of Paris.

1758 *K Street.*

WHAT CAN BE DONE FOR RELIEF OF URINARY DISCOMFORTS OF ELDERLY MEN.*

By R. C. BRYAN, M. D., Richmond, Va.

The title, which was suggested to me by one of your members, is of considerable interest and practical worth—*interest,* because, according to Sir William Thompson, 20 per cent. of all men over the age of 60 have urinary embarrassment; *practical worth,* because we must have a just appreciation of the significance of this embarrassment, and a familiarity with the pathologic conditions which give rise to it, to treat them properly.

At three-score years and ten, the engine in the human auto has run its course; the cylinders need grinding and are clogged with the products of overwork. At this time equal pressure, systolic explosion and synchronous revolution are of more good fortune than otherwise. The guaranteed life of the machine has expired.

Probably the following headings can be given which would constitute most of the causes of urinary embarrassment which compel the unfortunate patient to seek medical or surgical relief.

First and foremost, *the prostate.* The overgrowth of this gland, by virtue of mechanical pressure upon, distorts the deep urethra and sooner or later overcomes the expulsive power and muscular potentiality of the bladder, and this stammering, stuttering organ soon becomes speechless and is unable to perform its function. Whether it be the concentric hypertrophy of the cricket-ball variety, with the imperious demands for urination with dysuria and hematuria, or whether it be the eccentric dilatation of the bladder wall to a degree no thicker than a sheet of wrapping paper, the back pressure in both instances is practically the same. There is dilatation of the ureters and the pelvis of the kidneys; the second sound of the heart is augmented, it labors against great mechanical disadvantages and the whole picture is one of genuine confusion due primarily to dynamic obstruction.

I would not here consume your time with the diagnosis of enlargement of the prostate as a differentiation from stricture. It may be briefly noted that the frequent urination of enlargement of the prostate is essentially nocturnal while that of stricture is diurnal. This is explained by that well-defined hammock muscle, the levator ani, which, swinging antero-posteriorly in the lower pelvis, grabs the side of the prostate in its excursions. During the physiologic act of walking this muscle gently massages the sides of this gland, hurries along the stagnating blood in the peri-prostatic plexus and thus minimizes central congestion. At night these muscles are at rest and the massage ceases. Peri-congestion means central congestion and with the consequent edema of the mucous membrane it soon follows that the demands are more frequent than by day.

Mensuration and rectal examination soon clear up the diagnosis. The writer had the opportunity to classify enlargement of the prostate a short while ago, as follows: No. 1, characterized by a moderate amount of residual urine in which all the organs are healthy and the patient able to attend to his work. No. 2, characterized by a large amount of residual urine which is infected and nasty; no constitutional symptoms, however, and the patient able to attend to his work. No. 3, characterized by catheter life, or overflow, in which the infection is now systemic and the patient confined to the house.

It is in the first and second category particularly that we are called upon to give relief. What can we do for these old men? I would give an illustration: Mr. O. D. P., age 84, was sent to me by a Richmond physician for treatment. This old man had always led a a pretty active life but for some unknown reason was suddenly unable to "make his water." He considered the gradually increasing demands for urination as a concomitant phenomenon of advancing years. A hot tub and catheter brought a moderate amount of residual urine. The following day the procedure was repeated. The urine was clear, the organs working as well as could be expected at this old age; the bladder capacity was about twelve ounces. It was here necessary to immediately relieve the back pressure against which the bladder had been fighting for so many months or years—only finally to become overpowered and give up the battle. A permanent catheter was inserted and retained night and day for about a week by means of a rubber bridle. The bladder was gently

*Read before the fifty-seventh annual session of the Medical Society of North Carolina, at Wrightsville Beach, June 21-23, 1910.

irrigated twice daily by boric acid solution, and "the old man's tonic, strychnine," was given in generous doses and he was encouraged to eat. At the end of ten days the catheter was removed by day and allowed to remain in overnight. Now, five weeks after the first visit, the patient is in splendid condition, probably better than before his attack. He has gained considerably in weight, and although the demands are quite frequent, every few hours, his residuum is only one ounce; urine is perfectly clear, and with careful supervision he should go on leading a comfortable existence. Had this old man been operated upon, we doubtless would have heard the same report so frequently given out from the operating room, "the operation was successful, but the patient died." It would have been poor surgical judgment to have interferred radically in this instance.

As another illustration: Mr. W. J. A., age 74, ten years ago had a stone removed from the bladder and now has an enormous prostate, residuum twenty ounces. No catheter life. The old man attends to work but at frequent and irregular intervals there is infection characterized by pain, slight febrile reactions and depressions. In this instance the urine is gently drawn off, eight ounces of a 20 per cent. solution of argyrol is thrown into the bladder and left there for six minutes. This is followed by irrigation with boric acid solution and the patient given urotropin. Particular attention is paid to the bowels. In three or four days, usually, this treatment proves of great value to this old man, who gets up and goes about his work again. Operation in this instance is absolutely contraindicated. The tortuous, thickened arteries, the tired-out heart and the congested kidneys would not allow surgical intervention.

What we may conclude then, from these two instances is, that the bladder has simply laid down; it is tired out by the mechanical demands thrown upon it. All it wants is rest, a breathing spell, and this is best obtained by drainage per urethram, or until this stretched out bag regains its tone, urinary antiseptics and bladder washings are measures which must be carried out with the permanent syphonage. The retained catheter accomplishes the same mechanical idea as a suprapubic cystostomy and obviates a leaking wound which will require weeks or months to heal.

The exaggerated third division—that of catheter life—comes more seldom under our observation. The writer would illustrate this with the following case: Mr. X., age 80, for twelve years had to employ the catheter every three or four hours night and day. The residual urine is always large, the kidneys working well with mild grade of cystitis constantly present. This gentleman, on account of his intelligence and wealth, uses the catheter himself and is very much more familiar with asepsis and antisepsis than perhaps a good many physicians; consequently, for twelve years his routine life has been marked by no bad results and his years probably prolonged by having had no operation performed. In none of these instances would we suggest operation.

The writer does not wish to convey the idea that operation is contraindicated in all cases over 70. In many such instances the organs are of unusual strength and vigor; the blood pressure permits and the patient desires surgical aid which, by the perineal route, may be carried out in the hands of a skilful surgeon with a mortality comparable to that of the interval operation for appendicitis. Each case is a law unto itself.

Another cause for urinary distress in the old man is stone. This is a most painful condition. It is dependent upon retention and cystitis. The removal of the stone does away with the embarrassment. Mr. J. P. E., age 84, for several years had suffered the unusual pain of vesicle calculus. Under cocaine the stone was removed suprapubically, being about the size of a hickory nut, and the old man went on to a good recovery.

Palliative measures here are naturally of no benefit; operation is positively indicated, and unless the stone be of the soft phosphatic variety, the writer would condemn the use of the lithotrite. Stone formation in these instances is not always concomitant with enlarged prostate. How many of us here have removed renal, ureteral and vesical stones from the young?

Stricture of the urethra, which may be another classification, is but seldom seen in elderly men. He has either had this condition attended to in early life, or falsely diagnosed

as prostatic trouble; the introduction of instruments in the bladder for irrigation has done away with the vesical confusion. Only recently a gentleman presented himself for examination, 68 years old, who gave a distinct history of diurnal polykiuria, which led the writer to believe that the cause of the trouble was possible stricture. Rectal examination was negative. A filiform could not be introduced into the bladder. In these instances where a comparatively bold stream is thrown out and the demands not too frequent to interrupt business obligations or sleep at night, attention to the diet and warning about retention may be considered sufficient, as long as the patient presents himself for frequent observation. We cannot introduce the filiform on account of the tortuous canal. The opening is there, but we cannot find it. The writer has operated on many patients who had been bruised and lacerated in trying to find the opening, the resultant edema and trauma producing an acute retention. The eldest patient operated on in this series for stricture was 62; the acute retention defying catheterization, demanded operation.

And finally another class which comes under our observation as a cause of embarrassment in the old man is glycosuria. This is more frequent than is supposed. To illustrate: Mr. S. W. F., age 70, for the last few years has noticed increased demands by day and night. Rectal examination was negative; ureteral examination and cystoscopic showed a moderate enlarged mesial overgrowth. A large sound with gentle irrigation of the bladder furnished little relief. It was now that a thorough examination of the urine was made and about 2 per cent. of sugar found to be present. Regulation of diet, adjustment of his daily regimen immediately cleared up the picture. The urine had been examined at the first visit, but not for sugar. This latter is now carried out in every instance.

In conclusion, the writer would most emphatically discourage the use of the knife too hastily in these elderly men. It is more tedious and worrysome to be everlastingly boiling catheters, washing the hands and making up solutions than it is to use the glittering steel and in a few minutes hold aloft, balanced on the end of a hemostat, the offending organ. But how about the patient?

Virginia Building.

VASECTOMY FOR THE DEFECTIVE NEGRO WITH HIS CONSENT.*

By BERNARD BARROW, M. D., Barrow's Store, Va.

The object of bringing this rather unsavory subject before you is not with the idea of being an active advocate of this method of improving the quality of the negro portion of our population, but rather to call your attention to the possibility of its effect on the immediate and far distant future welfare of our entire population. It is my desire that you physicians should be the judges in this question, and if I am wrong in this work which I have just begun, you will, as a body of scientific men, as well as representative citizens, give me your opinion, so that my future actions may be guided accordingly.

As Southern gentlemen with the usual sympathy and kindly feeling for the weak in mind, if strong in body and vicious in his desires, it becomes you to be as tolerant, sympathetic and helpful to even the worse element of our negro population as reason will allow you to be, and I expect you to have this feeling in making your decision.

The negro, as a savage race, cannot solve his social and sanitary problems, and he should not be blamed for it; it is a responsibility which rests on the shoulders of the stronger race—the white man. In slavery the negro's earning capacity was in excess of his requirements necessary for health and happiness; as a freedman and the offspring of a freedman his voluntary earning capacity in a large percentage of cases falls below these requirements, with the results want, unnecessary suffering, disease and death. His tendency in breeding, especially on the male side, is that those with inherited savage instincts, many times with strong bodies but little mental and no moral development, procreate much more rapidly than those that have taken on many of the qualities of civilization. The most prominent type of the defective negro is rather numerous, and probably since the Civil War, has been on the increase. The question naturally arises, has the tendency to breed backward been greater than our efforts to educate and civilize within the last forty-five years? If such is the case, can it be explained in part by the fact that those with the most

*Read before the Southside Virginia Medical Association, Petersburg, Va., June 28, 1910.

defective mental powers often have the bodies of their savage ancestors, and on account of the lower moral standards prevailing among the race in general this particular type, with his dominating personality and vicious appetite naturally becomes the father of a much larger number of children than proportionately belongs to him? There are evidently other types of the defective negro, and the physician, as a scientific man and the guardian of the physical well-being of future generations should be a competent judge as to those who should not be deprived of this function of procreation.

If the physician has the power, is it not his duty to do something to eliminate the vicious and disease-bearing portion of our population?

The reason I have selected vasectomy as a remedy calculated to do the most good at the present time is because it is an operation so simple and attended with so little risk that practically every physician in this country can do it in his office without assistance and with the simplest kind of instruments. It is a remedy which does not mutilate and does not unsex the man on whom you operate, and if explained carefully to the average defective negro, who naturally wishes to shirk every burden and responsibility, and especially that of providing for his offspring, it appeals to him as a remedy which will allow the gratification of his excessive sexual appetite without the usual results to follow.

The idea is, that if the physician uses his judgment in selecting the cases who are defective or undesirable individuals for breeding purposes and suggests the operation to them, explaining that they can still ejaculate with sexual intercourse; that there is practically no pain and no risk of life in the operation; that it usually improves the general health and the manly vigor of the individual, and that if they should so desire later on to beget children the potency of the vas-deferens may be restored by a skillful operation, the most of them will be anxious to have it done.

If the good therapeutic results claimed by Dr. Sharp, of Indianapolis; Dr. Belfield, of Chicago, and even the limited experience of Dr. Carrington, of Richmond, be forthcoming there is little doubt that we physicians of the South will begin this work in a general way within a short time, while it will be so popular among this defective class of negroes that within a few generations its effect will be so far-reaching that it will go a long way towards solving the negro problem by eliminating the vicious, criminally inclined, disease-bearing portion of the race.

If you gentlemen think well enough of this remedy to try it yourselves, and if you then think well of it, and will suggest its practice among your brother physicians of the South, its effect in the distant future may be so great that it behooves us to weigh well a remedy of this kind before we discard it without a trial.

Belfield has this to say about the operation: "Vasectomy is an office operation; it can be performed in a few minutes under cocaine anesthesia through a skin cut half an inch long; it entails no wound infection, no confinement to bed; it is less serious than the extraction of a tooth." Sharp described the operation thus: "After cleansing the part with soap and water I bathe the part in alcohol, then grasp the spermatic cord between thumb and index finger of the left hand, detect the vas, hold it firmly and fix it with a pair of bullet forceps, then cut down on it, draw it through the scrotal wound by means of a tenaculum hook, strip off all membranes and the accompanying artery, ligate above, and sever, cutting away any portion from the vas that may have been damaged in the manipulation. This is done in order that the end next to the testicle may not become closed. It is very important that it shall remain open in order that the secretion of the testicle may be emptied around the vessels of the pampiniform plexis and there absorbed, for it is through this process that the economy receives the tonic effect of the secretion; also where the end closes there is likely to be cystic degeneration.

"The action of the muscle closes the skin wound and no stitch, collodion or adhesive plaster is needed. The patient returns to his work immediately and suffers but little inconvenience. There is no diminution of sexual power or pleasure. The discharge of orgasm is but slightly decreased.

"The operation in the female is more difficult, but if skillfully done no more hazardous. The overduct is reached through a median incision, the tube ligated near the uterus and severed beyond the ligature."

Carrington describes the operation as follows: "Sterilization is a very slight operation; you simply resect the vas-deferens, and it is gener

ally done with cocaine anesthesia. A small nick is made through the skin of the scrotum, near the pubes, and after an assistant has forced the vas, with the accompanying vessels, into the line of the cut, pick up the vas with forceps, resect it, tying off each end, then close the wound; one stitch generally suffices and apply a collodion dress."

The operation which I have been doing is similar to the method described by Dr. Sharp. "After shaving and washing with soap and water, I bathe the part with alcohol, cocanize a small area of the scrotum, make a small opening with knife, grasp cord and after locating the vas hold same firmly between thumb and finger, introduce small tenaculum through scrotal opening and hook the vas, withdraw the hook with vas, strip it of all membranes and the accompanying artery, ligate above and cut vas half an inch below ligature. The stump is then cut off near ligature and the scrotal wound closed with a stitch and collodion dressing."

As an argument that the application of this remedy is not altogether visionary, I wish to state that since February 6th of this year—the date of my first vasectomy—I have used this operation on five negro males and have two cases who have requested the operation, but have been deferred until I could get the opinion of this meeting.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS—REPORT OF A CASE.*

By EDGAR P. COPELAND, M. D., Washington, D. C.
Assistant Clinical Professor of Pediatrics, George Washington University, etc.

A female infant, aged 8 weeks, was seen in consultation on February 11th, because of persistent vomiting of nourishment over a period of three weeks.

The history given by intelligent parents was as follows:

The child had been born normally of a healthy mother, who was said to have gone one month beyond term, and who had previously given birth to two normal children, now living and in good health.

This infant weighed 7 pounds and 12 ounces at birth, was perfectly formed and above the average in general appearance. The flow of maternal milk started promptly and was of a proper chemical composition, as shown by two analyses. Upon the breast feeding the baby throve without mishap until the beginning of the fifth week, at which time it had reached a weight of nearly ten pounds.

At this period vomiting began, small amounts at first some two hours after feeding, later at some time in the twenty-four hours the accumulated stomach content. This later vomiting soon became more or less projectile in character and was described by the father as being "shot out." Never at any time was the vomitus discolored by the presence of bile. With the diminished retention of nutriment constipation became more and more marked, but such stools as were induced were described as well digested. The marked loss of flesh had been manifestly that of a simple starvation, unattended with fever or other symptoms of inflammation or intoxication.

The case had been under the care of a competent and conscientious physician, who had finally taken the infant from the breast and resorted to whey and various other cow's milk modifications, to say nothing of various proprietary infant foods. Each change had been followed by only temporary improvement. Notwithstanding the failure to retain nourishment the infant took with avidity anything offered to as great a quantity as was permitted. The lower bowel had been utilized to some extent for alimentation.

My examination showed a baby, somewhat fretful, but in very fair condition. There was no means at hand to determine the weight, estimated about 8 pounds, muscular strength very good. Other than the loss of weight and associated anemia, there was nothing—I wish to lay particular emphasis upon this fact—abnormal to inspection, none of the appearances so common to cases in which there has been long continued dietetic error and gastro-intestinal disorder.

The abdominal wall was wasted and thin, so that gastric peristalsis, stimulated by stroking the belly, was plainly visible and marked. I inspected a bowel discharge that had followed some hours after a nutrient enema and found it small in quantity, golden yellow in color and without undigested food. Owing to muscular rigidity patient palpation of the abdomen was unsatisfactory.

*Read before a meeting of the Medical and Surgical Society of the District of Columbia, March 3, 1910.

With a tentative diagnosis of hypertrophic pyloric stenosis, I ordered a diet of 7 per cent. lactose solution, one ounce, alternating with a similar quantity of albumen water every four hours, and in addition one ounce of normal salt solution by rectum at the same interval.

I found on my visit the following morning no improvement, the salt by rectum had been well retained, but there had been cumulative vomiting of almost all nourishment taken by mouth plus considerable mucus. At this time I had the patient fed one ounce of albumen water by mouth, and, watching the abdomen, I observed the most tremendous peristalsis, three waves passing across the stomach from left to right. Abdominal palpation was again unsatisfactory.

Even with failure to palpate the diagnostic pyloric mass I now became convinced of the correctness of my first opinion and decided upon gastric lavage, as advised by Dr. Still. Unfortunately, I was able to resort to the treatment but once. The child's mother constantly under the strain of its care for a period of three weeks, was in such condition that the nervous shock induced by the mere thought of washing out her baby's stomach became a matter for serious consideration. Under such circumstances I could only withdraw from the case.

I have however, been able to follow the subsequent course of the case more or less accurately. Peptonized milk, albumen water, various beef extracts, by mouth and by rectum, have been used with much the same results, temporary improvement and final return to the original condition, with all the while a progressive loss of weight and strength. The prognosis in the case I should consider unfavorable under dietetic treatment alone.

The Rockingham.

Proceedings of Societies, Etc.

Medical and Surgical Society of the District of Columbia.

REPORTED BY FRANCIS E. HARRINGTON, M. D.

DISCUSSION OF DR. COPELAND'S CASE.

Dr. Abbe mentioned seeing a case operated upon in New York and one in the District of Columbia within the past two years. He says the diagnosis is important, and waiting for a tumor to form is severe upon the patient. Palpation is not an early symptom. Peristalsis is usually not so well marked as in Dr. Copeland's case. If we wait too long a patient is run down, and in these cases nutrition is necessarily limited. Alkalies to relieve acidity is rational treatment. When nutrition has been reduced it is unfair to delay surgical treatment. Pyloroplasty was cited as an operative procedure. The sphincter is cut and the wound closed with peritoneum, leaving the ends ununited. He suggests submucous operation. The divulsion method without more radical procedure he could not appreciate.

Dr. Kober asked what divulsion meant.

Dr. Vaughan stated that the stomach is grasped and invaginated, and described Mikulicz's operation as discussed by Dr. Abbe. Dr. Finney has modified this operation.

Dr. Copeland: Diagnosis is frequently difficult. Ejection of food does not mean stenosis. Palpation of tumor depends more upon spasm rather than upon hypertrophy. Anesthesia destroys the very symptoms sought. Shortly after giving food is the best time to palpate the tumor. Dr. Still does not elaborate the surgical procedure. Careful weighing of the patient is the best method of determining the time for surgical intervention. Considers divulsion simply a method of breaking up "habit spasm" of the sphincter. Pyloroplasty simply relieves by producing an outlet to the stomach but does not cure.

Pyelitis—Pathological Specimen.

Dr. Hagner reported a case in which he showed an X-ray picture of kidney injected with argyrol. A normal pelvis holds about 10cc. This kidney held about three ounces. Urine contained one-fourth pus by volume.

T. B. kidney operation and removal.

Symptoms presenting one and a half years with lavage of the bladder. Sudden onset with frequent passages and pain with blood clot. Urine showed pus cells. The cystoscope showed T. B. ulceration on the right side of the bladder wall. Urine from the right kidney showed pus and T. B., the left normal. Urine seems to inhibit the growth of T. B. Pain ceased immediately after operation and all symptoms improved. "T. B." tuberculin administered every five or six days. Negative results upon general examinationf for T. B.

Second case. Operation and removal.

No active general tuberculosis. T. B. of the bladder is a primary lesion in the kidney and removal is the only hope of cure.

Dr. Sowers asked if the first patient was ever T. B. vaccinated.

Dr. Hagner said that he has treated cases with the "T. B." tuberculin, but has never heard of a cure from this treatment.

Dr. Copeland: In autopsies in children showing general tubercular envolvement, no matter what symptoms were present, in his experience he never remembers finding a lesion in the kidney.

Dr. Hagner finds the same fact to be true; therefore, believes the kidney is always the primary focus.

Dr. Kober asked what would be the means of infection from these cases.

Dr. Hagner replied that the circulating blood, and that the bladder was secondarily infected from the kidney.

The Medical Examining Board of Virginia

Met in Richmond at Medical College of Virginia, June 21, 1910, 9 P. M.

All the members were present except Dr. P. W. Boyd, of Winchester, who reported before the examinations began, June 22nd.

Minutes of last meeting read and adopted.

Dr. Whitehead, of the University of Virginia, and Dr. Gray, of the University College of Medicine, were present and endorsed the present arrangements of sections.

Dr. Brady moved that the representatives from the different medical schools in the State be furnished questions by the chairmen of the different sections in three weeks after examination closes. Adopted.

Dr. Corey reported resolutions upon the death of Dr. M. R. Allen, of Norfolk, Va.

Dr. Brady, chairman of Committee on Revision of By-Laws, appointed at Lynchburg, read report of committee, which was adopted.

Dr. Brady moved that the treasurer be required to give bond in surety company for $1,000 and expenses of same be paid by the board. Adopted.

Dr. Brady made a motion, which was seconded by Dr. Rennie, that the Secretary and Treasurer's salary be $300 from this date, with necessary expenses for a stenographer. Adopted.

The President appointed the following committees:

Reciprocity Committee, Drs. James, Rennie and Williams. Question Committee, Drs. Old, Wright and Barney. Oral Committee, Drs. Brady, Glasgow and Dew.

Dr. Dew presented, and paid, $5 fee for a duplicate certificate for Dr. Fergusson. Secretary was instructed to furnish Dr. Fergusson with requirements and certificate to be issued when complied with.

Dr. Old, chairman of the Question Committee, read questions, which were adopted.

Dr. Brady's resolution in regard to reciprocity, was adopted, which is as follows:

"That applicants for reciprocity from other States shall pay a fee of $25. Those desiring a certificate from this board for the purpose of obtaining reciprocity from another State shall pay a fee of $10."

Order of examinations was as follows:

Wednesday.—From 9 A. M. to 12 M., obstetrics and pediatrics; from 12 M. to 3 P. M., anatomy and histology; from 4 P. M. to 7 P. M., surgery and gynecology.

Thursday.—From 9 A. M. to 12 M., physiology and embryology; from 12 M. to 3 P. M., materia medica, therapeutics and toxicology; from 4 P. M. to 7 P. M., hygiene, preventive medicine and medical jurisprudence.

Friday.—From 9 A. M. to 12 M., chemistry; from 12 M. to 3 P. M., pathology and bacteriology; from 4 P. M. to 7 P. M., theory and practice of medicine.

Dr. Martin, President, made the following ruling in regard to applicants who have taken part of sections under the previous arrangement of sections:

"Moved that when a new grouping of sections leaves part of a former group, which has been taken previously, the candidate shall so state the fact on his paper, designating time and place taken."

The Secretary was instructed to require certificate of moral character from each applicant at time of registration in all future examinations as per medical law.

It was moved that a two-line advertisement in *The Virginia Medical Semi-Monthly* be continued at regular rates. Adopted.

The Secretary requested that examiners re-

port their grades numerically, beginning with No. 1 and so on.

Board adjourned.

The Medical Examining Board met in the hall of the Medical College of Virginia, 6 P. M., June 22, 1910.

Present: Drs. R. W. Martin, President; R. S. Martin, Secretary and Treasurer; Glasgow, James, Warinner, Barney, Dew, Old, Boyd and Williams.

It was moved and seconded that the board meet in Lynchburg, Va., December 20-23, 1910.

The minutes of the first meeting were read and adopted.

Reports made by the Reciprocity Committee and Oral Committee were read and adopted.

Board adjourned.

R. W. Martin, *President.*

R. S. Martin, *Secretary-Treasurer.*

QUESTIONS FOR EXAMINATION OF APPLICANTS FOR CERTIFICATES OF LICENSE TO PRACTICE IN VIRGINIA, JUNE, 1910.

Section on Histology and Anatomy.

Dr. O. C. Wright, Jarratt, Va., Examiner.

Histology.

1. (a) Name the elementary tissues of the body and give the morphological constituents of each.
   (b) Describe a cell.
2. Name the varieties of muscle tissue and give general distribution of each variety.
3. Give the two principal component parts of the nervous system. Briefly describe and give function of each.
4. Give the histological structure of the stomach.

Anatomy.

1. Describe the spine and give the general characters of vertebra.
2. Name and describe the muscles of the orbit.
3. Name the branches of the axillary artery and give its relation in its thrd portion.
4. What is the lymphatic system? Describe the thoracic and right lymphatic ducts.
5. Name the nine regions into which the abdomen is divided, giving their boundaries and contents.
6. Describe the Superior Radio-Ulnar articulation.

Section on Physiology and Embryology.

Dr. R. B. James, Danville, Va., Examiner.

Physiology.

1. Give distribution and chief functions of Vagus.
2. What is meant by an afferent impulse; an efferent impulse; by reflect act?
3. Give names and locations of the three salivary glands, with the manner of communicating with the mouth.
4. What part does saliva play in digestion?
5. Give composition of bile and its function in digestion.
6. What channels does the blood pass through in the systemic circulation, from leaving the heart till return to same? What changes take place in blood in each channel?
7. Describe the pulmonary circulation, giving changes in blood in same.
8. What is the lymphatic system?
9. How is heat dissipated from the body?
10. What organs eliminate soluble systemic poisons from the body?

Embryology.

1. What relation do the Wolffian ducts and the ducts of Muller bear to the sex of the foetus?
2. What is the difference between the human ovum and the ovum of the fowl as regards the nourishment of the Embryo?

Section on Chemistry.

Dr. J. N. Barney, Fredericksburg, Va., Examiner.

1. Give preparation, properties and uses of N_2O.
2. Give preparation, properties and uses of
   (1) Chloroform.
   (2) Iodoform.
3. Name salts of K. and give preparation and medical uses of any two.
4. Give preparation of
   (1) Ether.
   (2) Chloral hydrate.
5. What is the Periodic Law?
6. Name three organic acids, and give description of two compounds of such acids used in medicine.
7. Name three sorts of sugars.
8. What changes occur in sugar solutions exposed to air?
9. What are the ordinary chemical substances used to produce soap?
10. Name four vegetable active principles used in medicine.
11. Name three mineral acids, with formula for any two.
12. Name following, any two:

(1) $C_2H_4O_2$	(3) $K\,Mn\,O_4$	(5) C_6H_6O.
(2) C_2H_2	(4) $Ca.\,(Cl\,O_3)_2$	(6) $H\,NO_3$

Section on Pathology and Bacteriology.

Dr. R. M. Slaughter, Theological Seminary, Va., Examiner.

1. Define the terms thrombus and embolus, giving the causes and results of each.
2. Explain the occurrence of the metastatic abscesses characteristic of certain infectious diseases.
3. Name the diseases in which intestinal ulceration is an essential feature. Name the portion (or portions) of the intestinal tract in which the ulceration is found in each of these diseases.
4. Describe the phenomena, or signs, of inflammation, illustrating the subject by describing the formation of a common boil (furuncle).
5. Name the variety of degeneration termed cloudly swelling. Name the class of diseases in which it commonly occurs.
6. Name the class of tumors under which the carcinomata are grouped histologically. Name the subvarieties of carcinomata.

7. Give the bacteriology of erysipelas, syphilis, puerperal infections and basilar meningitis.
8. Explain the mode of infection in the malarial fevers, typhoid fever, tuberculosis and tetanus.
9. Define the term protozoa. Name two pathogenic protozoa and the disease which each causes.
10. Give a typical example of an obligate parasite, and of a facultative parasite. Does the colon bacillus ever become parasite in nature?

Section on Therapeutics.

Dr. J. E. Warinner, Examiner, R. F. D. No. 4, Richmond, Va.

1. Give modes of administering drugs, and a good rule for dosage to children.
2. Give four general indications for diuretics.
3. What three ill effects sometimes develop during administration of Digitalis, and what is its best substitute?
4. Write a prescription for four doses, containing four drugs, having active cholagogue properties.
5. Give indications and contra-indications for use of Ergot.
6. What are the general indications in the treatment of poisoning by drugs?
7. Give symptoms and treatment for poisoning by Carbolic Acid.
8. Differentiate the coma resulting from Opium, Uremia and Alcohol.

Section on Materia Medica.

Dr. Robert Glasgow, Lexington, Va., Examiner.

1. Define the following terms, giving an example of each; Alteratives, Narcotics, Diuretics, Emmenagogues, Mydriatics.
2. Define and classify Anesthetics, naming the more prominent of each class, and state which you regard the safest general anesthetic, giving the main reason why you so regard it.
3. Give doses of the following: Hydrochloric Acid Dilute, Hydrocyanic Acid Dilute, Oxalate of Cerium, Chloral Hydrate, Codeine Sulphate, Creosote, Strychnia Sulphate, Tincture Strophanthus and Atropia Sulphate.
4. Give sources from which Cinchona is obtained and mention its main salt and alkaloid.
5. From what is the alkaloid Hyoscine obtained, what is the dose and how best administered?
6. Classify Astringents, with reference to the sources from which they are obtained and give one or more examples of each class.
7. Name several leading Antipyretics and state in general how they reduce temperature.

Section on Hygiene and Preventive Medicine.

Dr. H. W. Dew, Lynchburg, Va., Examiner.

1. How does standing water purify itself?
2. Give an efficient method of rendering river water suitable for town consumption.
3. In the disposal of sewage, which is the more effective: the intermittent or the continuous flow, and why?
4. Give a cheap and effective formula for disinfecting privies and water closets.
5. How would you manage an epidemic of scarlet fever, and how would you disinfect clothing and rooms?

Section on Medical Jurisprudence.

Dr. P. W. Boyd, Winchester, Va., Examiner.

1. Name six signs of death.
2. How soon after death does rigor mortis set in, and to what is it due?
3. How can you determine that a body has been burned during life or after death?
4. What is infanticide?
5. Define illusion.

Section on Theory and Practice of Medicine.

Dr. John G. Rennie, Petersburg, Va., Examiner.

1. Give treatment and management, in general, of typhoid patient, during and immediately following profuse intestinal hemorrhage.
2. Give period of incubation and symptoms of smallpox.
3. Differentiate lobar from broncho-pneumonia.
4. Give symptoms of acute uremia.
5. Give gross pathology of hypertrophic cirrhosis of liver.
6. Give treatment of acute nephritis.
7. Define (a) hydro-nephrosis; (b) empyema; (c) chlorosis; (d) Grave's disease; (e) sciatica.
8. Name the important complaints of acute articular rheumatism.
9. Name five important symptoms of tabes.
10. Give causes of arterio-sclerosis.

Section on Obstetrics and Pediatrics.

Dr. Herbert Old, Norfolk, Va., Examiner.

1. Give relative diameters of inlet and outlet of the true pelvis and fetal skull.
2. Give preparation of patient, solutions, dressings, room and bed during labor.
3. Describe an up-to-date obstetrical bag and its contents.
4. Technique of applying and delivering by forceps a R. O. P. position, the head being through the cervix, but not on the perineum.
5. Course and treatment of (a) Primary uterine inertia; (b) secondary uterine inertia.
6. Causes, symptoms and treatment of Phlegmasia Alba Dolens.
7. Diagnosis and treatment of early hereditary syphilis in infants.
8. Give the handling and care of cow's milk in order to be able to dispense with pasteurization of the same for infant feeding during the summer months.
9. Give clinical manifestations of acute infantile paralysis.
10. Give causes and treatment of acute Ileo-Colitis.

Section on Surgery and Gynecology.

Dr. E. T. Brady, Abingdon, Va., Examiner.

Surgery.

1. What is Surgical Shock? How managed?
2. What is the difference between an acute abscess and a purulent infiltration?

3. Describe the appearance, symptoms and management of a syphilitic leg-ulcer.
4. Differentiate fractures and dislocations.
5. To what are hemorrhoids due? How many forms, and how treated?
6. Differentiate an incarcerated, from a strangulated hernia. What other conditions may be mistaken for them?
7. Give detailed description of an amputation at mid-forearm. Include technique (preparatory and operative), describe each step in regular order, until dressing is complete.

Gynecology.

1. What conditions may produce leucorrhea?
2. To what may dysmenorrhea be due, and how best remedied?
3. To what symptoms would a medium perineal laceration give rise?
4. Differentiate pregnancy, retained menses, and uterine fibroid.
5. What are the evidences and manifestations of approaching puberty?

Section on Homeopathic Materia Medica and Therapeutics.

Dr. H. S. Corey, Richmond, Va., Examiner.

Materia Medica and Therapeutics.

1. What remedy is indicated by the following symptoms: **Throat and neck** sensitive to slightest touch or external pressure; swallowing of liquids aggravates a great deal more than solids; pains aggravated by hot drinks; swelling usually begins on left side; all symptoms worse after sleep.
2. Name three remedies that have "restlessness" as a leading symptom, and give reason for the restlessness under each remedy.
3. What two remedies lead all in the sensation of "burning"?
4. Differentiate the mental symptoms of Nux Vomica, Puls-Ignatia.
5. Give the characteristic pain of Colocynth, Arsenicum, Apis, Bryonia, Arnica and Belladonna.
6. Give indications for Aconite, Spongia and Hepar-Sulph in group.
7. Differentiate Bryonia, Phosphorus and Kali Carb in pneumonia.
8. Give three leading remedies in rheumatism and indications for same.
9. Give leading indications for Aloes, Sulph, Nat-Sulph and Podophynum, in catarrhal conditions of the intestines.
10. Give aggravations and amelioration of Magphos, Belladonna, Coloc and Dioscorea in intestinal colic.

Toxicology.

1. What is the first thing you would do in being called to a case of poisoning?
2. Name two reliable emetics with dosage.
3. Give the best general antidote for (a) arsenical preparations; (b) mineral acids.
4. Give symptoms for acute Phosphorus poisoning.
5. Give treatment of carbonia acid gas poisoning.

Alphabetically Arranged List of Applicants for License to Practice Medicine, Surgery, etc., Who Passed Satisfactory Examinations Before the Medical Examining Board of Virginia During Its Session, June 21-24, 1910, Richmond, Virginia.

Arhart, G. A., Richmond, Va., Baltimore Medical College, 1910.
Allen, Lewis M., Baltimore, Md., University of Maryland, 1896.
Burton, L. C., Lowmoor, Va., Maryland Medical College, 1910.
Boders, A. C., Richmond, Va., Medical College of Virginia, 1910.
Bell, J. C., Pollocksville, N. C., Medical College of Virginia, 1910.
Budd, S. W., Petersburg, Va., Johns Hopkins University, 1909.
Baldwin, D. O., Apex, N. C., Leonard Medical College, 1910.
Butler, W. W., Jr., Philadelphia, Pa., University of Virginia, 1909.
Bryce, E. C., Richmond, Va., University College of Medicine, 1910.
Baker, H. J., Coeburn, Va., University of Louisville, 1910.
Broden, A. V. D., Paeonian Springs, Va., University of Virginia, 1910.
Bell, L. W., Axton, Va., Memphis Hospital Medical College, 1909.
Barrow, G. B., Danville, Va., Medical College of Virginia, 1910.
Becker, B. H. T., Roanoke, Va., American School of Osteopathy, 1910.
Blackford, J. M., Alexandria, Va., University of Virginia, 1910.
Bell, R. P., Staunton, Va., University of Virginia, 1905.
Bowles, C. E., Vontay, Va., Medical College of Virginia. 1910.
Compton, B. S., Front Royal, Va., University of Maryland, 1910.
Collins, R. L., Richmond, Va., Medical College of Virginia, 1910.
Chase, H. C., Bedford City, Va., University College of Medicine, 1910.
Clendennin, C. C., Glen Ferris, W. Va., University College of Medicine, 1910.
Carleton, B. L., Laneview, Va., Maryland Medical College, 1910.
Cox, Walter, Berryville, Va., Baltimore, University, 1898.
Crawford, C .B., Alexandria, Va., University of Virginia, 1910.
Dunn, Ernest W., New Bern, N. C., Philadelphia College of Osteopathy, 1910.
Dalton, J. B., Hillsville, Va., University College of Medicine, 1910.
Dunn, R. H., Huntington, W. Va., Medical College of Virginia, 1910.
Dixon, W. H., Richmond, Va., Leonard Medical College, 1910.
Davis, R. F., Grottoes, Va., University of Virginia, 1909.
Dabney, P. G., Petersburg, Va., Leonard Medical College, 1910.
D'Alton, C. J., Philadelphia, Pa., Medical College of Virginia, 1910.
Dunkley, D. A., Stuart, Va., University College of Medicine, 1910.
Dally, W. P., Corapolis, Pa., Southern Homeopathic Medical College, 1906.
Evans, W. H., Concord, Va., Medical College of Virginia, 1910.
Fowlkes, C. H., Richmond, Va., Medical College of Virginia, 1910.
Fervell, A. G., Rock Hill, S. C., University of Pa., 1910.
Faville, M. R., Charlottesville, Va., University of Virginia, 1910.
Ferebee, L. C., Norfolk, Va., Medical College of Virginia, 1910.
Faulkner, G. E., South Boston, Va., University of ginia, 1910.
Faircloth, G. R., Lowmoor, Va.,Medical College, 1909.
Faircloth, G. R., Lowmoor, Va., Medical College of Virginia, 1909.

Gatewood, E. T., Williamsburg, Va., Medical College of Virginia, 1910.
Gibson, H. P., Leesburg, Va., University of South, 1909.
Gibson, W. C., Suffolk, Va., University of Virginia, 1910.
Gilmer, W. S., Richmond, Va., University College of Medicine, 1910.
Gardner, S. P., Arcadia, Tenn., Chattanooga Medical College, 1909.
Haley, L. C., Axton, Va., Medical College of Virginia, 1910.
Hodnett, W. S., Danville, Va., University College of Medicine, 1910.
Hodges, F. M., Easton, Pa., University of Pa., 1910.
Hudson, C. C., Richmond, Va., University College of Med., 1910.
Harshbarger, Ward, Richmond, Va., Medical College of Virginia, 1910.
Hayes, G. W., Franklin, Va., Medical College of Virginia, 1910.
Hagen, M. G., Richmond, Va., Medical College of Virginia, 1910.
Hughes, T. E., Laurel Mills, Va., University of Virginia, 1910.
Hogue, R. C., Disputanta, Va., Medical College of Virginia, 1908.
Hill, Ralph W., Garrisonville, Va., Marquette University, 1908.
Irwin, J. M., Farmville, Va., Washington University, 1902.
Ivey, E. V., Suffolk, Va., University of Pennsylvania, 1910.
Johnson, G. W., Danville, Va., Atlantic Medical College, 1910.
Jones, J. P., Morrison, Va., University of Virginia, 1908.
Jones, A. P., Montgomery, W. Va., University of Virginia, 1910.
Long, G. R. H., Richmond, Va., Medical College of Virginia, 1910.
Lickle, H. P., Molusk, Va., Maryland Medical College, 1909.
McDonald, J. L., Richmond, Va., Medical College of Virginia, 1910.
Martin, G. B., Carters Bridge, Va., Medical College of Virginia, 1910.
Moore, E. B., Aldie, Va., University of Virginia, 1907.
McIntyer, Edwin R., Richmond, Va., Hahneman Medical College, 1893.
Mathews, A. A., Oak Hall, Va., University of Virginia, 1910.
Marshall, H. T., Charlottesville, Va., Johns Hopkins University, 1908.
Moyers, J. A., Oak Flat, W. Va., P. and S. College, St. Louis, 1899.
Newman, J. M., Philadelphia, Pa., Leonard Medical College, 1905.
Nolen, J. T., Stuart, Va., University College of Medicine, 1910.
Purdum, E. A., Providence Forge, Va., University of Virginia, 1910.
Pierce, J. W., Hampton, Va., Howard University, 1910.
Parker, P. J., Hampton, Va., Baltimore Medical College, 1910.
Rutrough, J. C., Willis, Va., Baltimore Medical College, 1910.
Richardson, J. R., Max Meadows, Va., University of Louisville, 1910.
Raynor, R .W., Whitehaven, Md., University of Maryland, 1910.
Ramsey, J. T., Richmond, Va., University College of Medicine, 1910.
Ryan, B., St. E., Philamont, Va., University of South, 1908.
Railey, S. J., Norfolk, Va., Medical College of Virginia, 1910.
Rawls, E. W., Norfolk, Va., Medical College of Virginia, 1909.
Ritter, W. E., Clay, W. Va., Jefferson Medical College, 1885.
Simmerman, H. H., Wytheville, Va., Medical College of Virginia, 1910.
Seelinger, H. R., Norfolk, Va., University of Maryland, 1910.
Shuler, R. L., Comers Rock, Va., U. S. Grant University, 1907.
Smith, J. H., Richmond, Va., University College of Medicine, 1910.
Shelton, T. S., Atlee, Va., Medical College of Virginia, 1910.
Stroud, J. D., Norfolk, Va., University of Virginia, 1908.
Sheffield, A. T., Franklin, Va., Medical College of Virginia, 1910.
Snapp, A. J., Roanoke, Va., American School of Osteopathy, 1910.
Sutton, R. N., Ballston, Va., Georgetown University, 1910.
Trower, E. H., Eastville, Va., Medical College of Virginia, 1910.
Turman, J. W., Richmond, Va., University College of Medicine, 1910.
Tune, W. O., Vernon Hill, Va., Medical College of Virginia, 1910.
Todd, G. L., Mt. Solon, Va., University of Virginia, 1910.
Tewksbury, W. D., Catawba, Va., George Washington University, 1908.
Talkin, M. M., Brooklyn, N. Y., Maryland Medical College, 1908.
Weitzel, J. S., Richmond, Va., Medical College of Virginia, 1910.
Wolfe, I. E., Coeburn, Va., University of Louisville, 1909.
White, T. W., Abingdon, Va., University of Louisville, 1910.
Wilson, R. E., University, Va., University of Virginia, 1910.
White, C. S., Washington, D. C., Columbian University, 1910.
Ward, O. W., Gliden, N. C., Medical College of Virginia, 1910.
Whithan, L. B., Philadelphia, Pa., University of Pennsylvania, 1910.
White, T. N., Franklin, Va., P. and S., Baltimore, 1882.

THE AMERICAN PROCTOLOGIC SOCIETY.

(Continued.)

The Use of Quinine and Urea Hydrochloride as a Local Anesthetic in Ano-Rectal Surgery.

By LOUIS J. HIRSCHMAN, M. D., Detroit, Mich.

The author presented to the society a report of his work with quinine and urea hydrochloride as a local anesthetic in ano-rectal surgery. The cases operated upon were as follows:

Acute thrombotic hemorrhoids, 10; internal

hemorrhoids, 22; interno-external hemorrhoids, 7; external hemorrhoids, 10; fistula-in-ano, 14; abscess peri-anal, 7; fissura-in-ano, 7; excision of scar tissue, 3; Ball's operation (pruritus ani), 2; hypertrophied papillæ, 16; inflamed Morganian crypts, 4. Total, 102.

He reported perfect results as far as operative anesthesia was concerned in every case, and in but seven cases was there any post-operative pain. He uses the one per cent. solution of quinine and urea hydrochloride in all of his cases of ano-rectal surgery where suturing of the skin is not required.

The technic of administration as employed is the same as that used with weak solutions of cocaine and eucain. He describes this technic in detail. He believes that the substitution of quinine and urea hydrochloride for any of the other anesthetic salts hitherto employed will be found eminently satisfactory in all cases of ano-rectal surgery where suturing of the integument is not required. He sums up its advantages over the other anesthetic drugs as follows:

1. It is soluble in water.
2. It can be sterilized.
3. It is equal to cocain in anesthetic power.
4. It is absolutely non-toxic.
5. It has a pronounced hemostatic action.
6. Post-operative anesthesia lasts from four hours to several days.
7. It is inexpensive and most always available.

Atony of the Rectum.

By WILLIAM M. BEACH, M. D., Pittsburg, Pa.

Atony, or sluggishness of the rectum, signifies the inability to expel its contents by reason of impaired musculature, ligimentation or innervation, and, further, the musculature in the rectum proper, or that portion above the plane of the levator ani is entirely involuntary whose inertia must, therefore, be due to some inherent factor.

On the contrary, the anal canal, which is made up for the most part of the voluntary fiber, has most to do with the expulsive act, the normal function of which depends chiefly upon the muscular automaton that is intact, proper innervation and psychic influence.

The physiologic rectum depends upon (1) an unobstructed canal; (2) firm ligaments, and (3) a well-developed rectal sense residing in the anal canal. Factors contributing to atony are (a) traumatism to the perineal body; (b) disease in the anal canal (c) enteroptosis secondary to general systemic conditions or local anatomic anomalies; (d) the abuse of injections and drastic catharsis; (e) disease in adjacent organs, as prolapsed uterus, adhesions, neoplasms, appendicitis, prostatitis, circulatory disturbance as engorged portal vessels and primary gastric diseases; (f) atony may be the sequel to luesis or senility. The treatment is that of constipation, being guided by the cause. Alterative, dietetic and mechanical agencies are to be invoked.

Villous Tumor of the Rectum.

By T. CHITTENDEN HILL, M. D., Boston, Mass.

The author stated that a villous tumor of the rectum is very uncommon and but few cases have been recorded in current literature. B. Merrill Ricketts reported a case before this society in 1907, and states that but "Sixty-two cases have been reported, nine of which have been by six American authors." Since then I have been able to find but one case reported by Vautrin—(L'Review de la Gynecologia). His article is the most accurate and painstaking observation to be found on the subject.

It is rather difficult to arrive at any conclusion as to their relative frequency by studying the reported cases or by searching hospital reports, as these border-line tumors are generally very loosely classified. Probably the most accurate data at our disposal may be had from St. Mark's Rectal Hospital, London, in which twenty-five villous tumors are tabulated among 42,343 patients with rectal ailments.

The chief point of interest about these tumors is that a certain percentage of them show a marked tendency to undergo malignant degeneration. From the histories of the thirteen cases cited by Ricketts, including one of his own, we learn that three recurred and three did not. Those with a broad base later became malignant, while those with a pedicle did not. Of the other seven cases, no mention was made as to the final outcome.

Goodsall and Miles have had twelve cases—eight in men and four in women—of which number two ultimately became carcinomatous.

From careful study of these cases, and several others, the author believes that if there

is a distinct pedicle without infiltration of the adjacent mucous membrane, tumors of this type are generally benign and if completely removed by ligation, or otherwise, there is but little likelihood of their recurring. On the other hand, if the base is broad, whether there be induration or not, a total extirpation of the rectum should be advised.

Another point of some interest borne out by a study of these cases is that the longer the condition has existed the less likely is it that the growth will prove malignant. The case now reported seems to bear out this statement:

Mrs. M., 40 years of age, was referred by Dr. J. H. Vaughan, of Everett, Mass., January 5, 1907. She was well nourished, weight normal but anemic, with sallow complexion. Had had indigestion for years but in other respects was in good health. For the past six years had noticed small rectal hemorrhages. During the year previous the hemorrhages had become more profuse and the mass was always protruded at the anus during defecation and even after slight exertion when walking.

She had to go to the toilet several times during the day and to get up two or three times at night, when she would pass one-half cupful of blood-stained mucous; also considerable mucous would at times escape with flatus. For two months tenesmus had been present nearly all the time. She did not complain of anal or sacral pain.

On rectal examination, sphincters, peri-anal skin, and anal canal were perfectly normal. In the rectum was felt a slippery growth with a band-like pedicle one inch wide by one-half inch thick, attached obliquely with the long axis of the rectum. By careful manipulation, the writer was able to bring outside the anal orifice a lobulated cauliflower-like mass, the size and shape of a large English walnut from which there was a gentle oozing of blood while it was held outside by the sphincters.

Operation was done January 8, 1907. The sphincters were stretched after infiltration with one-quarter of 1 per cent. cocaine solution and the mass drawn down with the finger and the pedicle infiltrated and clamped about half an inch from the margin of the tumor. The pedicle was then transfixed on the proximal side of the clamp and ligated with pagenstechere No. 5 in three sections, and the pedicle cut away on the distal side. An ounce of bloody mucous escaped from the anus during the dilation.

The operation was easily performed and with but little discomfort to the patient under local anesthesia. Over three years have now elapsed since the case was operated upon and as yet there is no sign of recurrence.

The report of Dr. Louis Hoag upon specimen, January 8, 1907, was as follows: "Pedunculated cauliflower tumor of flattened spheroidal form, of pale brownish-red color, and 4x3½ cm. in size. Surface quite regularly broken by deep narrow pits and furrows between and among hundreds of small hemispherical ovoid and spindle-shaped lobules, ranging from 1 to 3mm. in diameter. Such are soft, juicy, but not necrotic, and of uniform pale brownish-red color. Surface always smooth and glistening. Irregularly distributed are deeper clefts outlining pyramidal divisions of the tumor, each bearing upon its base, which is directed outward, a number of the lobules just described. Toward the periphery of the cross section of the tumor the lobules are of uniform, soft consistency, and of uniform pale brown-red color. Centrally, the pale pedicles, which are about 4 mm. in diameter, enter the tumor at a sort of hilum, and its white fibrous tissue bearing numerous small blood vessels spreads out to be finally lost in the similar tissue of the apices of the various pyramidal divisions of the tumor."

Significance of Rectal Hemorrhage.

By LOUIS J. KROUSE, M. D., Cincinnati, Ohio.

The attention of the profession is called to the importance of making a more careful examination of every case where there is bleeding from the rectum. Rectal hemorrhage must not be considered conclusive of the existence of piles. Many other diseases besides piles are accompanied with bleeding. He laid great stress on the importance of diagnosing malignancy in its early stage so as to give the patient a better chance of recovery. Many cases of malignant disease of the rectum, whose only symptom is hemorrhage have been overlooked and the patient sacrificed, which would not have occurred had the family physician insisted upon a local examination, thereby diagnosing the disease in its incipiency before it

had gone beyond the operable stage. Every patient is entitled to a thorough examination, and physicians are in duty bound to use all the means at their command to accomplish it. As Murray very aptly expressed himself, "Thus a case that to-day would be operable and a cure result, if diagnosed, would be inoperable in six months or a year, and death result." The author reported numerous cases where a correct diagnosis had not been made on account of the negligence of the family physician. Some had been operated upon for bleeding piles which subsequently turned out to be cancer. The author concluded his article with the statement that earlier recognition of malignancy would add materially to the future welfare of the patient, which can be obtained by surgical measures, and it, therefore, behooves the general practitioner to be on his guard and examine carefully every case of bleeding so as to detect malignancy in its incipient stage.

Ano-Rectal Affections of Infancy and Childhood.

By A. J. ZOBEL, M. D., San Francisco, Cal.

This paper briefly described those ano-rectal affections of infancy and childhood which may appear on one's daily work or in consultation practice.

From the first hour after birth the ano-rectal region is of vast importance. At that time, malformations may be determined and proper relief promptly afforded.

The various malformations were enumerated and briefly described. Some of these abnormalities pass unnoticed throughout a long life, but others are the source of great discomfort and distress.

Mention was made that while hemorrhoids are common in adults, the possibility of their presence in the young is rarely considered. Yet they may appear in children of tender years. The various causes for hemorrhoids in the young were reviewed in this paper.

Malignant growths of the rectum, while rare, are occasionally met with. Cases were quoted where the disease was found in children as young as 5 years of age.

Benign growths are more common. Adenoma is the most frequent of these. They are often diagnosed as internal hemorrhoids, and like them may become strangulated. They may exist for some time, and attain quite a size without producing any symptoms until strangulation occurs.

Fissure of the anus is believed by the writer to be present more often than it is usually diagnosed. It may cause severe crying in nurslings. May cause reflex symptoms to appear which, for a time, may baffle the diagnostician. Some of these may resemble coxalgia. The incautious and improper introduction of syringe nozzles and thermometers into the anal canal frequently cause fissures. Other causes were also mentioned.

Especial stress was laid on the subject of pruritus ani in children, the writer believing it to be a very frequent source of great discomfort and torment to the little ones. It is very rarely suspected or diagnosed, and he believes that it accounts for much of that peevishness in these littles ones for which no cause can usually be assigned. The child is seen to rub his anal region, saying that it hurts. Does not complain of itching. Seems to misinterpret the sensation. Superficial lesions of the anal mucous membrane have been found in these cases, and as the symptoms disappeared when local treatment was instituted, he feels assured that these were the cause of the trouble.

Fistulo-in-ano is met with occasionally in children, and even in nurslings. While it may be tubercular, it may also be of a congenital nature.

Ischio-rectal abscesses are met with even in early infancy. When incised, they rarely end in fistulæ.

Prolapse of the mucous membrane of the anus and rectum is a common condition during the second and third years of life. Long continued tight binding in babyhood may be the starting point. Diarrhea is the most common antecedent. Anything that induces prolonged and severe straining at stool may be a cause. Some of these causes were mentioned.

The varieties and causes of proctitis were also dwelt upon. Proctitis is often taken for ordinary catarrhal diarrhea, due to improper feeding. It is advised that when a gonorrhea of the genital tract exists in children that a secondary infection of the ano-rectal region should always be considered.

It is hoped that this reminder that infants and children have ano-rectal troubles, as well

as adults, will lead to more thought being given in this direction, and that it will bear fruit in bringing relief to some of these little sufferers.

Correspondence.

Acute Anterior Poliomyelitis in Epidemic Form.

Richmond, Va., August 15, 1910.

Mr. Editor:

I desire to place on record, through *The Virginia Medical Semi-Monthly* the fact that on July 29, 1910, I reported to the City Board of Health a series of five cases of acute atrophic paralysis (acute anterior poliomyelitis), occurring in my practice in the preceding two weeks, or thereabouts. I did so, because of the occurrence of this disease in an epidemic form in the cities north of us recently. And, also, for the further reason that while there may have been, and doubtless were, other cases in this city, none were reported. I desire to record these, both as a matter of medical interest and priority.

RAMON D. GARCIN.

Epidemic Infantile Paralysis and Its Control by Boards of Health.

Mr Editor:

At the recent meeting of the Congress of American Physicians and Surgeons, held in Washington in May, 1910, a joint session of the American Orthopedic and American Pediatric Societies was held and the subject of epidemic poliomyelitis was discussed. The following resolution was adopted:

"It having been shown by recent epidemics and investigations connected with the same that epidemic infantile spinal paralysis is an infectious communicable disease that has a mortality of from 5 to 20 per cent., and that 75 per cent. or more of the patients surviving are permanently crippled, State Boards of Health and other health authorites are urged to adopt the same or similar measures as are already adopted and enforced in Massachusetts for ascertaining the modes of origin and manner of distribution of the disease, with a view of controlling and limiting the spread of so serious an affection."

A committee, with Drs. Robert W. Lovett, president Boston, Mass., and Irving M. Snow, secretary, Buffalo, N. Y., was appointed to urge the various State and municipal health authorities to take up the work of investigation of the various foci of epidemic poliomyelitis, to study its epidemiology and to instruct the public that the disease is at least mildly communicable.

ROBERT W. LOVETT, M. D.,
President Committee on Poliomyelitis;
IRVING M. SNOW, M. D.,
Secretary, Buffalo, N. Y.

August 11, 1910.

Book Notices.

Diseases of the Skin. By ALFRED SCHALEK, M. D., Professor of Dermatology, University of Nebraska, etc. Second Edition, thoroughly revised. Illustrated with 47 engravings. Lea & Febiger. Philadelphia and New York. 1910. 12mo. 255 pages. Cloth, $1 net.

This is one of the deservedly popular "Medical Epitome Series" of the publishers. This second edition eliminates what was thought obsolete or unproven in the first edition, and much new material of the most practical character has been added. It is just such a book as the busy practitioner needs in diagnosis, suggestions as to treatment and other details stated in an abbreviated form. It also well serves as a students' review book in preparing for examinations, as questions are added at the end of each subject.

Books Received.

Annual Report of the State Board of Health of Florida, 1909.

Transactions of the Seventh Annual Conference of State and Territorial Health Officers with the United States Public Health and Marine Hospital Service for 1909. Government Printing Office, Washington, D. C.

Editorial.

Study and Prevention of Acute Infantile Paralysis.

In connection with the article and *Correspondence* in this issue of the *Semi-Monthly* on *Poliomyelitis,* attention is called to the fact that this disease—said to be one of the most frequent causes of palsy in infancy—has re-

cently made its appearance in certain communities of Virginia with some show of becoming epidemic. The apparently increased number of cases in this section has been thought by many to be due to the gradual extension by travel from the North and Northeastern States, where the disease has been unusually prevalent for the past two or three years.

No specific causative germ has so far been isolated, but the mode of onset and resemblance to other infectious disorders seems to stamp the condition as one plainly of infection. Although it seems that the Massachusetts Health Department was the first to undertake the study of the epidemiology of the disease, other State Boards of Health—with the aid of practitioners throughout the country—should not be slow to follow suit in efforts to ferret out the exact cause and modes of transmission, with a view to controlling such epidemics.

Acute anterior poliomyelitis is most commonly seen during the first five years of childhood. The larger number of cases occur during the late summer months and early fall. The disease ordinarily attacks children in good health, or those convalescing from some acute infection. It develops suddenly, usually with varying febrile symptoms, followed shortly by motor paralysis of a small group of muscles, or those of an entire extremity or extremities. Atrophy of the affected muscles is ultimately noted, ending in contractures and more or less deformity.

The lesions are most commonly found in the lumbar area of the cord, while the cervical region comes next in frequency of involvement.

The outlook during the first few days, or acute stage, is not so good as it is later, when the disease is rarely fatal. The important question at this latter time relates to the extent and permanency of the paralysis, and, while the majority of patients get better, complete recovery is scarcely to be expected.

Because of evident increase in the number of cases during the past few years, with the resulting invalidism and sometimes death, and because the disease is so plainly the result of an infection, which, when thoroughly studied and understood, offers hope of being controlled, it behooves each physician in attendance upon a case of this character to contribute his share to the field of investigation by notifying his State or municipal health officer, and by assisting him in every way possible.

We are glad to note that some of our health officers have already taken the matter in hand, and it is hoped others will fall in line.

Medical Society of Virginia.

The preliminary announcement postal of the forty-first annual session of the Medical Society of Virginia at Norfolk, October 25-28, 1910, has just been issued, calling especially for titles of papers to be presented the society. Such titles should be sent direct to the Secretary of the society, who will hand them over to the Committee on Program for arrangement in the official program, to be issued about September 20th. The titles of several papers are already in hand—including those invited by the President, as also some of the fraternal delegates from other societies. Applications for membership are coming in encouragingly, and the indications are that the Norfolk session will be a great success. Dr. William L. Harris is chairman of the Local Committee of Arrangements. Monticello Hotel will be the headquarters for the session. Communications should be addressed, according to their nature, to Dr. E. T. Brady, Abingdon, President; Dr. R. M. Slaughter, Theological Seminary, Va., Treasurer; Dr. Landon B. Edwards, Richmond, Secretary; Dr. William P. McGuire, Winchester, Va., Chairman Executive Council.

Shenandoah Valley Medical Society.

At the meeting in Winchester, Va., on August 10th, of the physicians in the Seventh Congressional District, about thirty doctors, of Rockingham, Shenandoah, Frederick, Clarke and Warren Counties, organized the above society to meet quarterly in places to be selected from time to time. Physicians residing in these counties, eligible to membership in the Medical Society of Virginia, are invited to join. Interesting papers were read by Drs. Walter Cox and L. M. Allen, of Winchester.

Dr. D. D. Carter, of Woodstock, was elected president, and Dr. Walter Cox, of Winchester, secretary-treasurer. The vice-presidents (one from each county) are as follows: Drs. J. E. Lincoln, Lacey Spring; D. L. Shaver, Maurertown; William A. Bell, Winchester; Charles O. Dearmont, White Post; C. D. Laws, Bayard.

The Executive Council is composed of Drs. Walter Cox, C. D. Laws, and William F. Driver. The next meeting will be held in Woodstock, in November, 1910.

St. Luke's Hospital, Richmond, Va.,

Is again being enlarged in order to meet the increased demand for accommodation. A new addition to contain twenty-four rooms is being built on the site of the former Nurses' Home on Grace Street, while an adjoining building is being converted into a new Nurses' Home. The addition will be made to conform architecturally with the main building, and the whole will present an attractive front.

Messrs. Lea & Febiger

Announce the early appearance of a new edition of Gray's Anatomy, which has been most thoroughly revised by the eminent anatomist, Dr. E. A. Spitzka, of Philadelphia. They claim that by rearrangement and elimination of duplications it will present more information in 100 less pages. The colored plates will be, if anything, more lavish than in former editions.

Dr. Paulus A. Irving,

Who for the past eighteen years has been one of the most prominent practicing physicians in Richmond, Va., expects early in September to return to his former home in Prince Edward County, Virginia, where he will continue to practice his profession. Ill health of members of his family causes him to seek the advantages of country life. Dr. Irving has made a host of friends in Richmond, who greatly regret his departure.

The Mettauer Medical Society

Held its regular meeting on August 23rd, at Farmville, Va. The subject for discussion, "Obstetrics," was opened by Dr. Peter Winston, of Farmville, after which a general discussion followed. Dr. A. Murat Willis, of Richmond, Va., read a most interesting paper on "Cesarean Operation." After the meeting an old-fashioned Virginia turtle stew was enjoyed by those present.

The American Association of Clinical Research

Will hold its second annual meeting in Boston, September 28-29, 1910. All physicians are most cordially invited to become members. Dr. James Krauss, the Secretary, of 419 Boylston Street, Boston, will forward application blanks and programs upon request.

Dr. Hunter H. McGuire,

Of Winchester, Va., was unanimously nominated councilor for the Seventh Congressional District, Medical Society of Virginia, at the meeting of the doctors of that district at Winchester, on August 10th. Dr. McGuire will succeed his father, Dr. William P. McGuire, whose term of office expires by limitation at the October, 1910, session at Norfolk.

Dr. L. G. Pedigo,

Of Roanoke, Va., has opened a summer office at Blue Ridge Springs, Va., with full equipment, etc., for special attention to diseases of the stomach and intestines. He will continue his office work in Roanoke at special hours.

City Home Hospital, Richmond, Va.

Plans and specifications have been accepted by a committee from the Richmond City Council for a new operating room at the City Home Hospital, and an appropriation of $8,000 has been made for the work.

Southside Virginia Medical Association.

Preliminary announcement has been made of the next regular meeting of this association on Tuesday, September 27th, at Franklin, Va.

Florence Nightingale,

The world's most famous nurse, died at her home in London, August 13th, in her ninety-first year.

Location Wanted.—Physician of good standing desires to change his location and will purchase or rent property with practice. Address *"Physician,"* care Virginia Medical Semi-Monthly.

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Original Communications.

CARCINOMA OF THE UTERUS.*

BY FRANK H. HANCOCK, M. D., Norfolk, Va.

It is quite well shown from available statistics that mortality from cancer is increasing throughout the civilized world.

In the registration area, which comprises about fifty per cent. of the entire population of the United States, the death rate per one hundred thousand of population increased from forty-seven and nine-tenths in 1890 to seventy-three and one-tenth in 1907. Between urban and rural communities there was no marked variation.

Fourteen and three-tenths of cancer deaths are from the female genitalia, according to an international classification.

Of the cases among females, the mammary gland and generative organs are affected in about forty per cent. of the cases. Ninety-six per cent. of all deaths from cancer occur after the thirty-fifth year. Westbrook said in the American Journal of Surgery that there are more deaths from cancer than from tuberculosis.

In New York in 1907 there were 7,000 deaths from cancer and 13,000 from tuberculosis. In the whole country there are approximately 80,000 cases of cancer. One woman in eight who reaches her thirty-fifth year dies with a cancer.

Loeb has established beyond a doubt, as have others, that cancer at first is purely local. The best surgical results are about forty per cent. recoveries in cancer of breast; ten to twenty per cent. of non-recurrence for five years in cancer of cervix; occasional recoveries after pylorectomy; about forty per cent. of face cancers recur. Operative skill has reached its limit.

*Read before the Southside Medical Society, in session at Petersburg, Va., June 10, 1910.

The only way at present to lower these percentages is an earlier diagnosis. This the general practitioner can and must do. By such means mortality will be perceptibly lowered and thousands who now die in such frightful torture will be rescued. The stigma that has heretofore attached to the victim, amounting almost to a superstition that it was a visitation of Divine wrath, will pass to the family physician for allowing such a thing, where it is not clearly shown that he has used all possible means to avoid it.

It is not that Jackson's operation is performed, or Wertheim's, but the question is, has the patient been given a chance with any operation? Carcinoma of the uterus is as often diagnosed by the laity as the physician.

Scheib says in the *Archives of Gynecology* that fifteen thousand German women die annually from cancer of uterus, and this in spite of the fact that the absolute percentage of cures has increased in some hands up to twenty per cent.

Watkins, in the *American Journal of Surgery*, points out with great force the necessity of regarding every uterine hemorrhage with alarm in women over thirty-five. They are to be regarded with suspicion until fibroid or something else is proven. In no other condition are there such urgent indications to determine the truth or falsity of the suspicion.

The general practitioner must start a campaign of education among the women in his clientele. To-day the laity must be as carefully trained in the early signs of this often preventable disease as the medical student as they are also being trained in the prevention of other diseases through public lectures, etc.

They should report to the physician as they approach the menopause any change in the character of their vaginal discharges. If the physician will then go to the point of impressing

upon his patients the value of a routine vaginal examination at least once in six months between the ages of twenty-five and sixty-five, whether there are symptoms or not, the statistics of operable cases of carcinoma of the generative organs will take their place along with those of cancer of breast.

Cancer of cervix does not differ in its biology from cancer of breast, or those of the other visible surfaces of the body, and would, if seen in the same stages of development be just as amenable to surgery.

Publicity will work in two ways: First by instructing women as to the significance of untoward menstrual symptoms, particularly at the climacteric: and second, the indolent in our profession will be so shocked by the roorback from this propaganda that he will give closer heed to the symptoms the layman has learned to regard with suspicion.

This has been noted already in Germany, where instruction to the laity through popular periodicals has been instituted.

Impressed by the overwhelming number of patients with inoperable cancer seeking cure at the German clinics, Winter, in 1891, instituted investigations to determine the cause, and whether or not it was remediable. He found that thirty-three per cent. had been treated for considerable periods of time without examination, the physicians relying upon a very cursory history for their guide in treatment.

As a result of this appalling observation a vigorous campaign against such haphazard and criminal methods was instituted, which wrought quickly a gratifying improvement. Four years later he reviewed one hundred clinic cases in the same locality, Eastern Prussia, with the following results: 81 patients had been examined at once, 9 had been referred to a clinic for examination, and 10 only had been treated without examination. Sampson, after investigating 412 cases of cancer, admitted to the Johns Hopkins Hospital, found that in 93 per cent. bleeding occurred in some form or other.

This accords with my experience at the clinic at St. Vincents' Hospital, Norfolk, Va., and accords with the histories of 49 cancers occurring in 3,200 women examined at that clinic in the past six years. There were 3,700 recorded, but in about 500 the record was incomplete or not sufficiently intelligible for scientific purposes.

The bleeding varies from a slight "show" to profuse hemorrhages. Sampson clearly emphasizes by his investigations that a very short period of neglected bleeding determines the horrible fate of the patient. In this disease *days are vital.* Patients rarely live over three years. Three-fourths succumb within two years, and one-third within one year after first manifestations.

Only thirty per cent. are operable when diagnosed in this country and only twenty-five per cent. of such cases are cured when operated upon for a period of five years.

While we know that early operation is the only hope for cancer it is the method the laity most abhor.

Medical knowledge has been too much the property of a closed corporation. We must furnish the lay world with an intelligent conception of our aims. The American Medical Association has a Board of Public Instruction for the dissemination of facts which can be utilized by the world at large. Such campaigns will have to be conducted with caution, or many a neurotic will become a victim of suggested cancer.

Cullen designates three situations in which cancer may develop—squamous epithelium, which covers the vaginal cervix; from glands or epithelium of the cervical canal, or from glands or epithelium of the endometrium. He says that any watery or bloody discharges that cannot be accounted for demand immediate and careful local examination. If the cervix is rough, friable and bleeding, the diagnosis of cancer is usually certain. If the diagnosis is uncertain cut a small plug out of the cervix and send it to a pathologist.

If the cervix is normal or appears so, the question then arises as to whether the cervical canal or the cavity of the uterus is affected. In such cases, unless some other diseases are found, which clearly explain the symptoms, the uterus must be most thoroughly curretted. The tissues should be thrown into ten per cent. formalin solution and sent to a pathologist. Cullen says: "As as rule, there is just as much difference between cancerous and healthy mucosa under the microscope as between two totally different patterns of wall paper."

From no other part of the body is it so easy

to obtain material for diagnosis. How thankful the operator would be to introduce a curette straight to the pylorus and bring away suspected tissue. Cancer of the uterus should be diagnosed one week, at least, after suspicious symptoms have appeared.

Metastasis of uterine cancer has been especially studied by Offergeld. His conclusions are most interesting. His work is more carefully and more painstakingly described, and his knowledge is more thorough and more profound than that of any other investigator, who has distinguished himself in this field.

I am deeply indebted to Dr. John G. Clark, of Philadelphia, for much of the information contained in this paper, and for all of the resolution to do mission work in this field, with the medical profession, as I am fully resolved to do.

I have maintained with considerable vehemence, and with entire conviction that the negroes were not as susceptible to cancer as the white race. A careful study of the histories of the 3,700 women examined at the clinic at St. Vincent's Hospital has convinced me that I was in error. I find that a large percentage of the women beyond thirty-five, who appeared at that clinic for examination were actually cancerous, or were giving rise to suspicious symptoms. I shall deal with this question fully in a paper where these histories will be carefully analyzed.

TYPHOID FEVER—DIAGNOSIS, LOCAL MANIFESTATIONS AND REASONS FOR SPECIFIC TREATMENT.

By H. E. JONES, M. D., Roanoke, Va.

Physician and Surgeon to Rebekah Sanitarium, and Member of Roanoke City Board of Health.

From literature and observation we know that typhoid fever is a systemic infection by germs (bacilli typhosi), bred and reared in filth and chiefly transmitted by flies, sewerage, typhoid carriers, polluted water and foodstuff. It chiefly and most commonly attacks locally the intestinal glands, Peyer's patches, lymph follicles and glands. There are cases where we have no local pathological lesions and then it must be regarded as an entirely systemic condition. The infection may manifest itself locally, by attacking the lungs, kidneys, greater nervous system, spleen, gall-bladder, liver and muscular system.

The clinical features of the disease are fever, coated and often cracked, red tongue, rose-colored eruption, tympanitis, tenderness over the abdomen, diarrhea or constipation, pea-green stools, and various phases of the disease as manifested in its various complications, such as nephritis, cholocystitis, appendicitis, spleenitis, pneumonitis, hypostatic congestion of lungs with effusion, encephalitis, meningitis, pleuritis, neuritis (general, local and multiple), ilio-cholitis, dysentery, orchitis, mastitis, septicemia and pyemia, pleurisy, endo-carditis and pericarditis, degeneration of the blood, arteritis, phlebitis, myo-carditis, peritonitis, erysipelas, cellulitis, local dermatitis, occasionally bone necrosis, gangreen, acute indigestion and ptomain poisoning. Surely, it is a systemic infection with many local manifestations to make diagnosis difficult when they appear early in the disease.

Our attention may be attracted wholly to the local manifestations and not to the true infection. In the growth and development of the germs, poisons and ptomains are elaborated that are as powerful as the venom of the copperhead, the diamondhead rattler, the gilla monster and the tarantula. They are as toxic as opium, alcohol, chloroform, ether, chloral and curare and many other narcotic, hypnotic and paralyzing drugs. It is estimated that one bacillus in ten days will produce a billion. The life processes and physiological chemical changes and waste products of this billion, or billions, are the causes of these poisons which do such terrible damage to the human economy.

An early marked local manifestation in the different organs is often the source of error in making a diagnosis. For example, when in the lungs, we may mistake it for pneumonia; in the greater nervous system for meningitis or encephalitis, etc.; or we may mistake it for any other disease the special organs attacked may simulate.

The death rate of typhoid is from 7 to 20 per cent.

It is rare that we are called to a case of typhoid fever until after the period of incubation, which is from eight to twenty-three days. When the onset is abrupt—with a chill—which it is occasionally, we are then called in at

*Read before the Roanoke Academy of Medicine.

once; but when it is gradual, the patient is usually treated with home remedies until he takes to his bed, and from such time the positive onset of the disease is dated. From this date, the text tells us, the disease will last twenty-one days, unless there is a relapse or repeated relapses, which will prolong it to forty-two, sixty-three, eighty-four and one hundred and five days. Now, if you will add the period of incubation—eight to twenty-three days—to any of the above figures, you will get the true duration of the disease.

To get the period of disability—the time that the patient is unfit to attend to his daily occupation—multiply the number of days ill by two, as it usually requires a patient as many days to convalesce as he is ill before he reaches his normal standard of health and strength.

In the onset of the disease the symptoms usually develop "insidiously and we are unable to fix definately the time when the illness actually begun." It may also come on suddenly and the patient is extremely ill from the first, with a chill, a severe headache, neuralgia, wild delirium and with cerebro-spinal symptoms simulating meningitis or encephalitis. Pulmonary manifestations in the beginning of the disease of a severe nature may be mistaken for pneumonia, bronchitis, pleurisy or acute tuberculosis. I have had two such cases with a delayed diagnosis, the true nature of the disease being masked by the local manifestations.

There is usually severe gastro-intestinal irritation, with vomiting, purging, and pain that may suggest poisoning or appendicitis, or some surgical disease, acute or chronic, of the abdominal organs or peritoneum. Literature tells us that two cases of typhoid fever in early stages were diagnosed as appendicitis and operated on at the Johns Hopkins Hospital, when the error in diagnosis was discovered. I had one such case and operated on it for appendicitis and found the appendix normal with a typhoid ulcer at its base. The patient recovered after the usual long course of typhoid with an abdominal hernia caused from extreme gaseous distention. At the time I did not know how to treat typhoid; hence, the distention and long duration of the case. Since then I have endeavored to thoroughly acquaint myself with all of the symptoms, phases and local manifestations of the disease, and I feel that I am now more capable of making a diagnosis than formerly. I believe, also, that I know how to treat the disease in a specific manner with certain and positive results, which I have given in former articles on "Mercury" and "Germ Diseases," and will relate again further on in this article.

Some of us have treated typhoid for acute nephritis, when there was bloody urine with casts, albumen and other evidences of nephritis that manifested itself in the muscular, circulatory and nervous system as well as in the urinary system with all of its characteristic symptoms. We have occasionally treated patients for jaundice, cystitis, gall-stones, pneumonia, hypostatic congestion, hemoptysis, pleurisy and pneumo-thorax, instead of treating the true condition—typhoid fever. Hence, typhoid has been divided by various authors into several varieties—namely, cerebro-spinal nephro-typhoid, pneumo-typhoid, pleuro-typhoid, and also into five forms—the abortive, ambulating, grave, hemorrhagic and afebrile.

Diagnosis and Treatment.—The absolute and certain diagnosis of an atypical (undeveloped or developed) type of typhoid in the first week after the incubation stage is a task for the gods—if not for them, it is for us—and we often need their aid and council, if such can be secured, to make us "cock-sure" of the disease.

In the first week of a typical case the disease is easily recognized by the history and clinical symptoms alone. The microscopical and agglutination tests, which are often negative, only serve as a corroborative evidence when positive, and are not necessary for an accurate diagnosis when all of the clinical symptoms are present.

With this disease, as it is with any severe disease, for the proper protection of the patient, it is important and imperative that an early diagnosis be made that suitable treatment may be instituted promptly, and the condition arrested before it has produced irreparable damage to the patient. When we are not certain of a diagnosis in a given case of fever, we should assume that it is typhoid, as typhoid is the most prevalent of all fevers, especially in the mountain and Piedmont districts and in thickly populated districts on low lands and coast. Specific treatment should be begun at

once, without waiting for all of the clinical evidence (some symptoms may be lacking) nor for the positive results of the laboratory tests, as they are frequently negative and do not appear with repeated examinations until late in the course of the disease, or until it is spent.

Another reason why we should commence specific treatment early in any given case of fever is because the treatment is just as effectual in one type as it is in another. In my opinion, it will destroy the germs or arrest their development in any germ disease when commenced early and we know that all fevers are the result of germ infection.

Those of us who are busy and pressed for time, after getting the history and making a thorough examination and noting all of the apparent clinical symptoms, have neither the time, and, frequently, neither the facilities nor technical knowledge to make the Widal test, nor to isolate the bacilli from the blood, stoools, urine, rose spots, nor to carry out Pfieffer's agglutination phenomenon.

I say to all of you who have the time, technical knowledge and facilities, by all means, carry out the tests, or have the laboratory physician make the tests for you. Before, and while the tests are being made, however, proceed with treatment that the patient may be saved from the dangers of the disease, and he may be on his way to recovery by the time the results of the scientific investigations are received.

Another reason why we should commence specific treatment early in typhoid and other germ diseases is because of the fact that we, the Gentiles, are a syphilized race with all the weakness, lack of resistence and a susceptibility that is characteristic of a syphilitic. None of us know how near related we are to a syphilitic; it may be as near as the first or as far off as the twentieth generation. Is it not a fact that all of us in treating other germ diseases in syphilitics promptly employ specific treatment to increase the resistence of the patient to the acute infection? Our syphilization is due to our disobedience to the laws of Moses, especially to the one pertaining to the circumcision of all male infants. It is estimated that more than two million cases of syphilis occur every year—probably twice that number. How numerous must be the number of children born every year with secondary syphilis! From these the hereditary forms of the disease are handed down from generation to generation. This process has been going on for such a long time that it has resulted in the syphilization of all the uncircumcised nations.

It is known that syphilis has a relationship in the production of susceptibility to germ diseases especially consumption, and with Gentiles it is appalling, "not only as affecting the primary individual, but subsequent generations of the same"; and with the known exemption of the Jew to syphilitic infection, owing to the protecting influence of circumcision, it is safe to assert that therein is to be found one of the main reasons of that race's resistance to consumption and other germ diseases.

"If we but look at the geographical distribution of phthisis and the history of its progress, we shall find that it has had syphilis as its avant courier on more than one occasion." Lancerauz, in his distribution of pulmonary phthisis, points to the fact that, where consumption has made its greatest progress, and where it has nearly depopulated one of the great divisions of the globe—namely, a certain group of islands in the Pacific Ocean—the disease had no existence at the beginning of the present century. Syphilis, scrofula and galloping consumption have, since the last ninety years, taken off the greater part of the population. Syphilis, scrofula and phthisis have been observed among the open-air inhabitants of the New Mexican plains, in the mountains of Arizona, and in the arid wastes of the Colorado deserts, where the appearance of consumption cannot be attributed to housing or incipient civilization, as it is attributed to housing the different tribes of Indians that occupied the regions that formerly formed the Northwest Territory. The question is very plainly answered as to how consumption, that has so ravaged the Oceanic Islands, was introduced, and as to whence it sprung. The English sailors who first visited those islands were not, as a rule, a batch of consumption tourists on a voyage in search of health or recreation; but they carried to the islands in the innermost folds of their pendulous prepuces the syphilitic germs acquired in Portsmouth and London. Consumption, as such,

was neither imported nor propagated by Europeans to those islands, its original entry being in the shape of syphilis."

From this, we have seen, as soon as the population of these islands beeame syphilized to the first, second and third generations, they lost their resistanee and immunity, became susceptible to germ diseases, whieh were contraeted, and mostly to tuberculosis which practically depopulated the islands. This will serve to illustrate the relationship between tuberculosis and syphilis, and through the same causes and effeets to the laek of resistenee and to the suseeptibility to other germ diseases, typhoid ineluded in the uneireumeized raees.

The Hebrew has a greater length of life, and a greater resistance to disease, "as well as less liability to physieial ills than other races." This condition is due to the faet that they are not a syphilized race, and they are not a syphilized race from the fact that they carried out and enforced the law of Moses in regard to circumeision. The obedience to this law proteeted them not only from syphilis, but gave them increased resistence to all other known germ diseases; which proteetion makes them today the purest blooded and most resistent, immune, and least susceptible race to germ diseases that inhabits the civilized globe.

The eitizens of Long Island are great eonsumers of jam. Their supply was being stolen by thieves whom the poliee were unable to eateh, and the effort was given up in disgust after repeated trials. One of them remarked that "it was a jam shame that the rascals are stealing all of the jam and we cannot eatch them." One of the authorities states that "the profession was long in learning that typhoid fever is not a disease to be treated mainly with drugs; in hospital praetiee, he says, "medieines are not needed, and in a great majority of my cases do not reeeive a dose." Again he says that in private praetiee it may be safer for the young praetitioner espeeially, to order a "mild fever mixture." What sound advice! He does not give it to the older practitioners; he allows them to flounder around to experiment and think for themselves. No doubt it is best for hmmanity that he has given us an opportunity to experiment, observe and think for ourselves and patients. No wonder his mortality and that of those who accept his authority is from seven to twenty per cent.! We all know that the "mild fever mixture" will not lower the natural mortality rate of typhoid fever. He says: "Thystle and others have advocated a combined eliminative and antiseptie treatment toward the destruction of typhoid fever and the toxines which they produce, but so far without suecess." He goes on to state he can testify to the ineffieieney of earbolic acid, iodine *and* B-naphthol, but with mercurial preparations, he says, he has had experience. With his opportunities as an authority and as a professor of medieine at different times in several up-to-date sehools, with all the facilities and patients at hand for making seientific investigations and observations, it is a great loss to unfortunate humanity and a "jam shame" that he has had no experience with mercury, for if he had and he was a elose observer of its effects, I am satisfied that from his authority practically all of the physieians for the past fifteen or twenty years would have been using this remedy; and with it, in my opinion, would have been euring and saving tens of thousand of typhoid patients every year. He says "of the various antisepties employed, it is doubtful if any have the slightest action on the baeilli in the lymphatie tissues of the bowels."

Mind you, he says he has had no experience with mercury; he also tells us that typhoid is a systemie infeetion. So are syphilis, tuberculosis, and other germ diseases systemie infeetions, and all of them are acted on in the system by a systemic germieide, aeeording to the belief of many different observers. If the germieide will act on other diseases through the system, surely it will act on the systemic typhoid infeetion, through the system and on the loeal manifestations through the blood current. The authority referred to says: "If, as in eholera, the baeilli develop and produce the poison in the intestinal eontents, there might be some reasonableness in the eliminative and the antiseptic methods, but the bacilli multiply in the intestinal walls, in the mesenteric glands and the spleen. They are sometimes not found in the stools until the end of the seeond week."

This, then, is more the reason for the use of a systemic germieide, for it matters not where the germs are loeated in the system, they will be reaehed by a systemic germieide, just as

syphilitic germs are reached by a systemic germicide. No doubt the author above quoted is aware of this fact, and I am surprised that a man of his attainments did not try to observe the effects of a systemic germicide *on infections other than syphilis.*

Authorities state that typhoid is self-limited and its average duration is twenty-one days, and in a few protracted cases the duration may be twenty-eight, thirty-five and forty days; with relapses, the duration may extend to two, three and three and one-half months, or more. From my experience the disease is not a self-limited disease unless it is allowed to take its course, with symptomatic treatment and a "mild fever mixture."

What have we to contend with? Is it a mild inoffensive disease that requires only nursing, symptomatic, hygienic and dietetic treatment, with only a "mild fever mixture" for the medicinal treatment? Could we cure syphilis by so treating it? No, a thousand times, no. If there ever was a disease that is dangerous, treacherous and uncertain in its deadly effects, it is typhoid, which requires the most powerful and potent, systemic and local, germicide known to medicine to control it. This germicide is mercury, and its most potent preparation is bichloride. You may eliminate with diuretics and purgatives of whatever nature and use a "mild fever mixture" they are essential and are aids—but they are aboslutely ineffectual in controlling or cutting short the disease; or of lowering the mortality from 7 to 20 per cent.

Bichloride, given hypodermatically, by mouth and inunction, in *sufficient quantity,* will break or cut it short in from five to twelve days from the beginning of its administration. I have treated about seventy (70) cases of the disease, at least 75 per cent. of them were well developed and typical; to my mind, there was no question as to the diagnosis in any of them. The drug was given both by mouth and inunction, and in a few cases hypodermatically. In 75 per cent. the temperature reached normal (morning and afternoon) either on the seventh, eighth or ninth days from beginning of the treatment; and in 25 per cent. of the cases, the temperature reached normal on the seventh, eighth and ninth days in the forenoon, and ran along in the afternoon, not as high as 100°, until the eleventh or twelfth days from beginning of treatment. In two cases where the drug was also given hypodermatically along with the oral and skin route, the temperature reached normal on the fifth day from the beginning of the treatment. In one case (female) when it was only given by inunction and hypodermatically, not by mouth on account of gastro-intestinal irritation, from the disease, not from the drug, the temperature reached normal on the eighth day from the commencement of the treatment. In another case (male) complicated with erysipelas the drug was administered by all three routes; the temperature reached normal on the eighth day from the commencement of its administration, and the patent recovered. I saw this case in a consultation, the prognosis was unfavorable, and the diagnosis was unquestionable.

In the cases I have treated with mercury as the specific agent, there have been no deaths, and but two complications. Convalescence was rapid in all the cases treated except one, which was delayed by abscess formation at sight of erysipelas. In one case (male) treated hypodermatically, treatment was commenced late in the disease, and temperature reached normal on the ninth day from commencement of treatment.

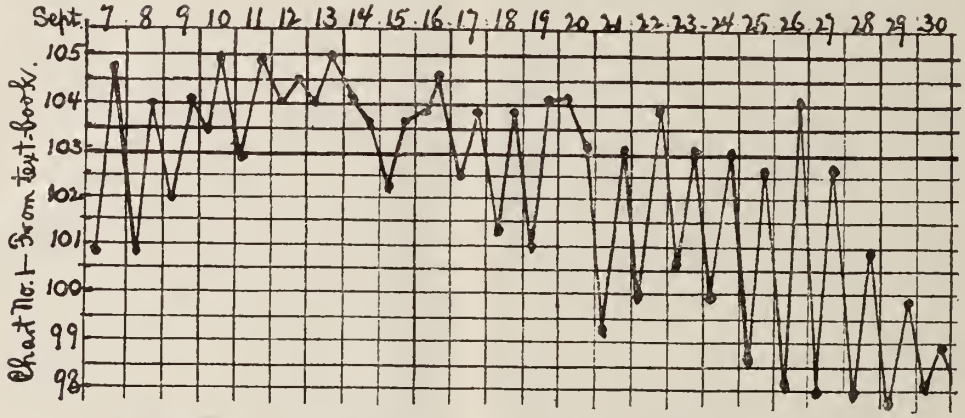
Observe below text-book chart (No. 1) of a typical case treated, I presume, according to text-book literature. Also observe charts Nos. 2, 3 and 4 of typical cases treated by me with mercury as the specific and curative agent.

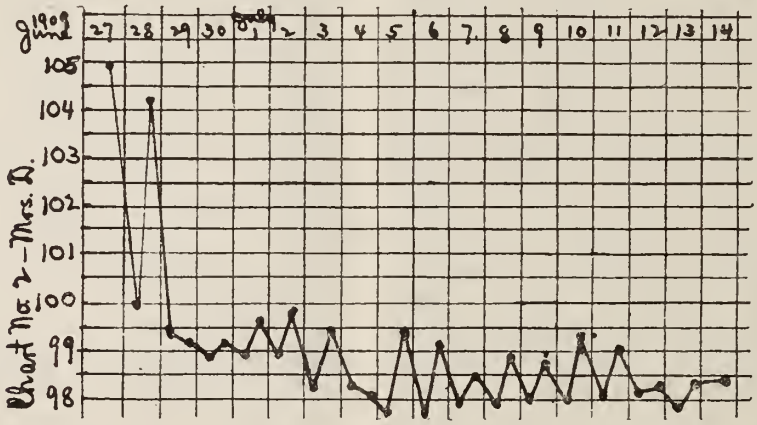
The charts have been drawn, not exact, but approximately correct.

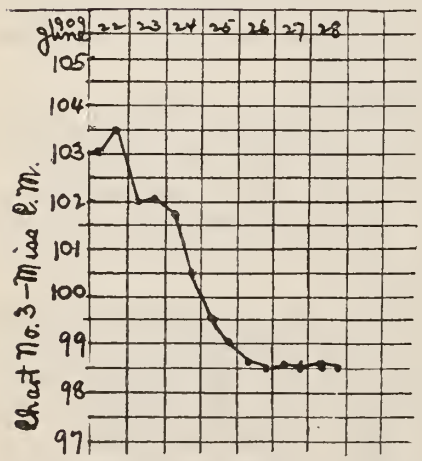
Make comparisons, draw conclusions, use the drug in your next case, make observation and do your own thinking from facts gleaned. It is a fact that neither editors nor authors of text-books can give us all that we are looking for, nor make all of the observations in medicine worth while.

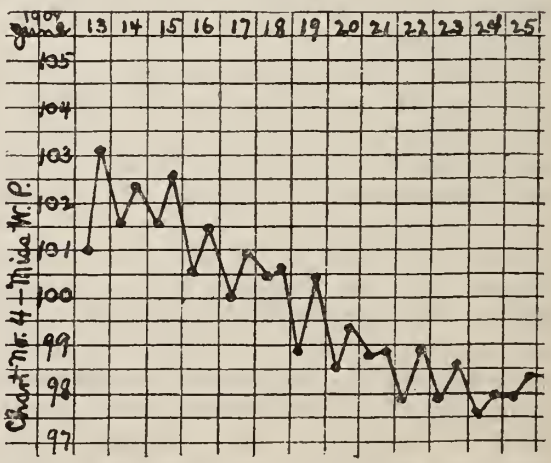
We, the common herd, are compelled to do a great deal of our own thinking, make observations of facts, apply them practically, "which is the final test," and, if found valuable, report them to our kind through the societies and articles in journals. You can rest assured that when the facts are proven, they will be applied; if found wanting, they will be cast aside; if valuable, they will be used.

Nearly all of the great facts in medicine and surgery have been discovered by all-around practical men, who daily apply the weapons at hand (and who are on the lookout for new and









better ones) to suffering humanity. It is necessary for us to throw aside conservatism and timidity, buckle on energy and enthusiasm, take steps to find new weapons, or to make right use of old ones, and to fight the foe with the stedfastness of purpose and bravery of a soldier; if we do not do this, the world will be dissatisfied with our laziness and inactivity.

Treatment.—In severe infections, give one-half to one grain bichloride every day for three or four days—1-16 grain by mouth every two or three hours night and day, and apply 25 per

cent. oleate of mercury ointment to abdomen night and morning until full physiological effects are obtained. Then lessen the amount so as to continue the effects until the disease is cured.

In mild cases of typhoid, the hypodermic administration is not necessary. It is preferable to clean out the alimentry canal with 10, 20, 30, or 40 grain doses of calomel; if the patient objects to calomel, clean out with any drug you may prefer, and commence the bichloride at once, or a few hours after the purgative is administered; and if you *administer enough of the bichloride, it will abort and cut short the disease in from five to twelve days in* 95 per cent. of the cases. If it does not break it up in that time, from my experience, when the drug is commenced early in the disease, it will cure 100 per cent. of the cases, even if it takes from three to six weeks in a few. I have had no deaths in typhoid fever since I adopted the treatment.

In those cases with pronounced wild delirium, comatose and semi-comatose states, the mind clears up in from twelve to twenty-four hours after commencing the treatment, and the patient's mind remains clear.

It is understood that the hygienic, dietetic, and symptomatic treatment, together with good nursing, is used as an aid to specific treatment.

It will surprise you how little of the old line of treatment and nursing is required when bichloride is used as the antiseptic in the treatment of typhoid and germ diseases. Before using the treatment, I gave one case of typhoid as much attention as I give from two to three cases at the present time. Surely this is a great saving of time and expense, to the patient, guardian or parent, of drug bills, nurse's wages, physician's fees, and the heaviest of all the undertaker's bill.

For the convenience of those who care to use the mercury treatment in germ disease, I will give the prescriptions that I use lately for convenience, put up in simple form, for any form of administration:

℞. Hydrarg. Chlor. Corrosiv., gr. 6.
Acid Hydrochlor. Dilut., min. 10.
Aquæ Dist., q. s. oz. 1.

(Be sure and use distilled water, else no good.)

M. S.—Five to twenty drops every two hours in one-fourth glass of water.

(Five drops=1-16 grain; 20 drops=4-16 or 1-4.)

This prescription can be used in 20-drop doses two or three times in twenty-four hours, or sixty drops given in two or three injections at once, in an ordinary hypodermic syringe without dilution or sterilization. There will be no abscess formation if the drug is injected deep into the tissues, either in sub-cutaneous fat or muscles. I prefer the former. The only precaution necessary is to have the needle and syringe clean, and cleanse the site of the injection with the end of a wet towel and ordinary soap. I have frequently given hypodermatically sixty drops (equal to 3-4 grain) of this mixture in severe infections of typhoid, once a day for three to six injections; I have then reduced the dose to 20, 15, or 10 drops, as the case required, and continued it by mouth in 5, 10, 15, or 20-drop doses every two hours during waking hours, and continued it by mouth after dispensing with the hypodermic injections.

The above prescription is a suitable form to administer the drug to children and those who cannot take tablets, pills or capsules. The dose can be varied and regulated according to the age, idiosyncracy, susceptibility and fastideousness of the patient. With a great many adults, lately, I usually prescribe 1-8 or 1-4 grain hypodermic bichloride tablets to be used both by mouth and hypodermatically, the same amount of the drug can be given in the twenty-four hours as advised with the above prescription.

Another prescription which I frequently use in typhoid, or any other germ disease for the first few days when the fever is running high is:

℞. Strychniae Sulph., gr. 1-2.
Hydrarg. Salicylas, gr. 1.
Bismuthi Salicylas, dr. 2.
Quinine Salicylas, dr. 2.
Aspirin, gr. 48.
Pancreatin, dr. 1.

M.—Ft. Caps. No. 24.

S.—One every six or eight hours until fever is reduced.

This is more than a "mild fever mixture." It is an antipyretic, stimulant, systemic germicide, intestinal digestant and antiseptic. When I am giving these capsules I leave off with a dose of the drops, the capsules taking

the place of one dose of the drops, and in two hours I follow the capsules with the drops every two hours up to two hours before the next capsule; or I may alternate the drops with the capsules for a few days until the high fever is reduced. As the patient is a reeking cess-pool of infection, both systemic, and in the alimentary canal, I prefer the following prescription for the purpose of cleansing and disinfection:

℞. Hydrarg. Chlor. Mit., gr. 45.
Pulvis Zingiberis, gr. 15.
Sacchar. Alba, gr. 15.
M.—Ft. Chart No. 3.
S.—One at bedtime every second or third night, as directed; follow next A. M., or in twelve hours, with a saline cathartic if it is needed.

The following prescription I use locally over the abdomen in typhoid fever twice a day, or use it locally over any organ that may be infected, which gives rise to a local manifestation:

℞. Terebinth., dr. 1.
Hydrarg. Oleatum, dr. 1.
Lanolin, dr. 2.
Petrolata Alba (white vaseline), q. s. oz. 1.
M.-S.—Apply to abdomen night and morning, and over any other organ that may be affected.

Most cases operated on at Rebekah Sanitarium are prepared with mercury. Infected cases are treated with it after operations. There is rarely any nausea and vomiting; there have been no deaths for fourteen months at this institution under the present management.

We recently operated on a septic case of appendicitis, with gangrenous and sloughing appendix (ruptured), abscess and general septic peritonitis. Prognosis in this case by all present was believed to be unfavorable. Belly was opened up and drained with gauze and glass tubes, patient turned on right side and head of bed elevated about twelve inches. Before he came out from the anesthetic he was given hypodermatically into the buttock 9-10 grain bichloride; he received 6 grain of calomel a few hours before he was operated on; a day following he was given 10 grain of calomel, followed in six or eight hours with saline.

For a few days he was given 1-16 grain bichloride per mouth every two hours, and then he was put on the red-iodide, 1-2 grain, twice a day for a few days, when it was discontinued. His temperature dropped to normal on the second day from a temperature of 103° and remained around 98° and 100 1-5° until about the tenth day when it reached normal and remained so. He made a prompt and uninterrupted recovery and was up and walking around in his room in two weeks.

I mention the above case to show the efficiency of bichloride in severe infections in surgical cases.

THE GOLD CURE FRAUD AGAIN.

By SAMUEL L. HANNON, M. D., La Plata, Md.

Barnum, the great American showman, once said that there was nothing that so delighted the American public as "humbug." There appears to be a periodicity in humbug. It has its high and low tides; it moves in cycles. Sometimes it takes one form, sometimes another, but we always have it with us. Sometimes it is meek and humble, sometimes blatant and insistent, but always the same dear old humbug that the world so lovingly clasps to its bosom, and welcomes as its dearest possession. It is common to all phases of human affairs, but seems to thrive and grow especially big with importance and authority when it masquerades under the guise of the Science of Medicine.

We are so accustomed to hearing sounded the infallibility of all sorts of panaceas and other sure cures for all the ills that flesh is heir to, that we scarcely note the blare of the quack trumpet; but occasionally something more than usually impudent is sprung upon the confiding public, that is so evidently a swindle and confidence game, that it becomes the duty of the medical profession in honorable standing to tear off the mask for better protection of the public that naturally and very properly looks to our members for advice, help and cure.

An imposition that has been before the public for the last ten or fifteen years is known under the general title of "The Gold Cure," with a pop-gun artist in command. Of the history of the origin of this so-called "cure" it is hardly necessary to speak. Perhaps to Dr. Keeley may be given the doubtful honor, since apparently he desired to wear the laurel. Numerous other "cures" have sprung up in his wake, all claiming to be superior to the original Keeley Cure,

and all warranted to absolutely destroy the desire for alcohol and morphine. Their wonderful, indeed all but miraculous, cures have been heralded from Dan to Beersheba, but it is safe to say upon scientific grounds alone that no such cure ever has been effected by any of these so-called "systems."

There are doubtless numerous instances (indeed the writer knows of one in particular) where persons have submitted to this treatment, and have ever since remained absolutely abstemious, but it is believed there is no case on record where the desire for the stimulant has been destroyed, the abstinence being merely the same effort of will power that any man may make, all other things being equal, and can in no way be traced to or connected with the "Gold Cure" treatment. Even these cases are extremely rare, and it will be found, upon investigation, that such patients never were, in fact really confirmed and habitual drunkards, but rather—having come to their senses during the few weeks of "Gold Cure" treatment—have merely resolved not to drink any more, and have kept to their resolution. So that if such are claimed as "cures," they are "cures," not by reason of the "Gold Cure," but in spite of it. That any confirmed drunkard or genuine "morphine fiend" was ever absolutely cured by these or any other pretended cures is scientifically impossible.

Horace Greely said that "the way to resume specie payments was to resume." In like manner it may be said that "the way to stop drinking is to 'stop.'" At any rate, if the world is destined to have a specific for this disease it has not yet found its way into our pharmacopeia, and is certainly not bi-chloride or tri-chloride of gold, or any other form or combination of gold. Some of the alleged "cures" assert that they do not employ "gold," but have mysteriously found some other and better specific. These are only the smaller humbugs that follow in the wake of the big and original humbug, and are possessed of an additional element of danger in that the "system" is usually in the hands of ignorant quacks who do not even pretend to be doctors of medicine, and are as likely to inoculate their patients with some disease by the indiscriminate use of the hypodermic needle as to do any other thing except to effect the cure (?) they advertise.

There does not seem to be any need now to attack the "Gold Cure" humbug since it is apparently rapidly dying out by its own inherent weakness and imbecility. But it appears to the writer that the public should be continually warned by its true physicians against lending willing ears to any scheme that purports to absolutely and certainly cure any one or more diseases, especially when the means employed is held as a profound secret and hence for that very reason may be properly regarded with suspicion.

The time has not yet come when we of the legitimate medical profession can say with absolute mathematical certainty that we can absolutely cure all diseases, for then the millenium would have come for a certainty, yet these "Gold Cure" people say they can absolutely cure—that there can be no failure. It is merely another case of "humbug," and the public should so regard it.

I was visiting a little while since the home of my youth, and while walking down one of the main streets I came across three companions of my boyhood days—physical wrecks, mentally, morally and physiologically—while not more than fifteen years ago these young men were well off in the world's goods and affluence and influence was theirs. They stopped me; one said he had so many things to talk about that he hardly knew where to begin. Their systems had been filled to over running with alcohol—all three had been subjects of the Gold Cure Fraud. More than a hundred times these young men had experienced the prick of the hypodermic needle conveying into their system that dreadful *dose of morphine* and supposed chloride of gold.

They returned home with blasted hopes—the desire for morphine supplanting that for alcohol, doomed to swallow the bitter pill of disappointment, with homes gone, and families scattered.

Now, the only hope suggested by me for the cure of alcohol, morphine and cocaine subjects is to get them as far away from the venders of the dope as you can, in a good, healthy country place, with hygienic surroundings, regular and nourishing meals and congenial companions. A year of this treatment with light occupation will go far to rid the system of the desire for such stimulants. Had I not seen the forceful sub-

jects of the gold cure fraud I would not spend my time writing of the humbug.

These cure institutions and "pop-corn doctors" exist to a great extent at present, but, good for the public, they are not so blatant.

Now to reiterate, the best cure is to take your patient far away from old associates, on a good country plantation, with daily baths, good social surroundings, and nourishing meals. With this treatment continued for six months or a year, the result will be 75 per cent. in your favor.

THE IMPORTANCE OF DIFFERENTIAL DIAGNOSIS BETWEEN CHANCRE AND CHANCROID.

By WADE H. ATKINSON, M. D., Washington, D. C.

Osler defines syphilis as a specific disease of slow evolution, propagated by inoculation (acquired syphilis) or by hereditary transmission (congenital syphilis). The seat of inoculation is the primary lesion. In the course of two or three months skin and mucous membrane involvements form (secondary lesions). Then during a period of three, four or more years growths develop in the viscera, muscles, bones, or skin (tertiary syphilis).

Syphilis is either hereditary or acquired, and is, of course, the same in its manifestations in either instance, save that the primary lesion is absent in the hereditary form. Acquired is due to an infection, presumably a micro-organism, not yet satisfactorily demonstrated, derived from some individual suffering from the disease.

I wish to call attention especially to the acquired form, as is presented to us in the shape of chancre or chancroid and to its clinical importance to both the patient and the physician.

While these lesions are present in the young, many times in very young children, and occasionally in ripe old age, it is far more frequent in the active ages of man. The wide diffusion of this disease is not appreciated by the average physician until years of practice demonstrates its prevalence, and then perhaps chiefly to those located in cities, where it is seen so often that one some times wonders how any have escaped all of its varieties.

The virus or active micro-organism is usually conveyed in sexual congress, but it can be communicated from one to another in any way by which the virus is brought into contact with a non-immuned person's body where the mucous membrane is broken, as erosions or absorbing surfaces, or where the infection can be taken into the blood or lymph channels. The activity of this virus is attested when we recall that there is no disease that has been more widely spread or more potent in its evil influence upon the human race.

Man, in his active period of life, scatters the virus almost as easily and recklessly as the house-fly scatters tubercle bacilli or typhoid germs, or the mosquito malaria and yellow fever. With the same aimless, restless flight is the germ of syphilis scattered by the princes of wealth and titled royalty, the dudes, the boys and girls, and on down the walk of life until the servants, loungers, vagrants, and even the criminals in captivity pass it on to their fellow associates.

To stop this mighty monster of human destruction, to alleviate the torture of body and flesh, and to remove the depression of spirits, restore ambitions and give back to man a clear, active, wholesome mind should be our effort; and in no way can so much be done as to clearly diagnose every case of primary syphilis to the entire satisfaction of ourselves, as well as to the patient. The patient must be seriously impressed with the import of such a diagnosis to him, to his family in whatever relation family ties exist, and to future generations, should he allow his condition to run along without being properly treated.

A chancre is the sore that appears within a month after exposure usually at the seat of infection. It is generally a single sore, but can be multiplied according to the number of points primarily inoculated. Osler says a chancre is, first, a small red papule, which gradually enlarges and breaks in the center, leaving a small ulcer. The lesion about this becomes indurated so that it ultimately has a gristly, cartilaginous consistency, and to this condition has been applied the name of indurated, or Hunterian chancre.

A chancre may vary in size, and does often, according to its location.

Were all chancres of the plain type, even this meagre description would make them easily recognizable, and under favorable circumstances

*Read at a meeting of the Medical and Surgical Society of the District of Columbia, April 7, 1910.

in a clear-cut case, with no complications, says one well-known author, a diagnosis would be easy; and yet, as he says, there are no infallible signs. When, however, we consider the number of stages and the exceptions that are to be found, we have a large number of sub-divisions to consider in arriving at a diagnosis—as chancrous erosions, ulcerations, indurated papules, simple inflammations, chancroidal inflammations, papillary growths, mucous patches, phagedena and gangrene—and it is well nigh impossible to diagnose between chancre and chancroid sufficiently clearly to put patient on specific treatment until the secondary symptoms are noted.

The usual seat of chancre is about the genitalia, but the chancre is found on almost any part of the body. It is reported frequently on the lips, tongue, nipples, anus, fingers, tonsils, etc. Its duration is variable, but in the majority of cases it lasts a few weeks, one author giving the time from six to twelve weeks. Gotheil says the period of incubation is from ten days to ten weeks, and that constitutional syphilis always follows it. He says, further, "In many cases it is an insignificant lesion, and is often unobserved." The skin over the papule may be merely reddened, or it may erode or ulcerate; the ulceration may be shallow with smooth, shiny base, and scant, viscid secretion, or it may be deep and covered with diphtheritic slough and necrotic tissue. In rare cases the lesion may be vascular or even bulbous from the beginning. It may be small—$\frac{1}{4}$ inch in size, or it may be $1\frac{1}{2}$ inches in diameter.

A second important symptom of chancre is the hard, stony painless swelling of the lymphatic glands belonging to the tissue involved. A third phenomenon seen some weeks after the secondary incubation is the evidence of constitutional syphilis.

In chancre we often find little pain and tenderness, but Caille makes the broad statement that the initial lesion of syphilis, chancre cannot, in its first stage, be distinguished from herpes, simple or chancroidal excoriations, etc., until the secondary stage is reached. Chancre may disappear in a few weeks by resorption, but it may be months or years before the last traces of the induration vanish, leaving a pigmented spot or a scar.

Not one authority could I find who does not admit that with all the characteristics of chancre, a reserved diagnosis should be made, for there are so many conditions arising—the mixed infections, the wilful deceptions practiced by the patient, etc.—which are misleading, that a positive diagnosis can be made absolutely only after the secondary lesions are manifested.

Chancroid, soft chancre, non-infecting chancre, etc., is a specific local contagious, auto-inoculable, spreading ulceration of skin or mucous membrane, caused by a virus or micro-organism. While chancroid is said to have no period of incubation, the process beginning immediately after infection, still the writer so declaring goes on to state it usually develops within two or three days after the supposed exposure to the contagion before the lesion is observed, and again they say that where the virus, poison or contagion has been lodged in a crypt or follicle it may be one or two weeks before the patient's attention is drawn to the developing lesion.

It is difficult, sometimes, to decide which exposure to virus caused the transmission, when we remember that many engage in sexual congress with astonishing frequency. In a venereal clinic in this city, I heard the question put to a negro patient of about fifty years of age: "How many nights in the week do you have intercourse?" Answer was: "Pretty nearly every night." "Nearly every night?" "Yes, sir." "How many times a night can you do that act" was the next question, and the answer was: "When I was younger I could do it six or eight times, sir, but lately I hardly ever do it more than about three or four or five times a night." "Do you mean to say," was asked again, "that you cohabit that many times every night in the week?" Answer was: "Yes, sir; that is pretty nearly correct, sir." The clinician turned to his class and said, "Gentlemen, I cannot tell when the exposure to the virus that caused this ulceration occurred, so we will use simple wash with local treatment, etc., and watch for developments." The illustration is plain to all that we cannot tell at which congress the virus was met.

The itching erosion, or pustule, dries up into a crust revealing a characteristic chancroidal ulcer. In its early stages it is round, with sharp, undermined, punched-out edges, surrounded by narrow vivid-red, inflammatory areola. No induration is present, unless it be a mixed infection with a true Hunterian chancre or indura-

tion from caustic application. This is just where the differential diagnosis is impossible, and where I make a most earnest plea *to always wait for the secondary symptoms before making a positive diagnosis, or giving a drop of medicine that might retard or prevent a good secondary eruption.*

As a chancroid develops, the floor of the ulcer becomes irregular, bathed in pus or covered with grayish fragments of necrotic tissue, an exact condition afterwards seen in ulcerated chancre. As a chancroid grows to lentil size, suppuration becomes more profuse, covering a period of three or four weeks, and the sore reaches the size of a bean or a penny before repair begins. When the inflammation diminishes, the edges of the ulcer lose their sharpness, the areola disappears and granulations begin to cover the base of the sore. Here, again, the indurated chancre, whose duration covers a period of ten days to ten weeks could have appeared and been on the road to resorption before the three or four weeks' of ulceration and suppuration of chancroid have passed.

The seat of chancroids is upon the genitals in most cases, and is commonly located upon the corona, glans, prepuce, frenum and meatus in the male, and labia in the female. Chancroid is very rarely found on other parts of the body. Auto-inoculations frequently occur, leaving coalesence of adjacent edges and multiple irregular shaped ulcers. The chancroid does not always run this easy course, but becomes phagedenic, diphtheritic or gangrenous; advancing rapidly into deep and extensive destruction of tissue. More often, however it heals on the one side while its ulcerations advance in an irregular punched-out edge on the other. The lymphatic system becomes involved rapidly from the infection, and is swollen and tender, reaching resolution early.

Herpes occurs quite frequently on the glans penis, prepuce, labia majora or nymphae, and while its cause is similar to those of the face, still they are prone to occur at irregular intervals, and are prolonged, when they ulcerate from irritation caused by coition, or uncleanliness leading to an infection. Indeed, it is not uncommon to have the chancre or chancroid engrafted upon a herpetic lesion. I feel quite sure that many have treated cases of herpes, recurrent, infected, etc., and eventually the patients presented themselves with some form of syphilis.

The greatest importance of a differential diagnosis between herpes, chancre and chancroid, in the simple, plain uncomplicated cases is beautifully clear as we observe the groups of vesicles of herpes. In chancroid, the vesicle rapidly becomes a pustular, round, undermined sore with dirty base, and is a painful auto-inoculable sore, accompanied by painful bubo. Chancre, with its induration and characteristic hardness, is accompanied, on the contrary, with a painless adenopathy. But it is true that one or both may coexist with our harmless herpes; and a positive opinion cannot be given in the case of chancroid for several days, nor can one be given in case of chancre until the longest period of possible primary incubation has passed.

Here, again, I want to make the point as impressive as possible that we should treat all sores of a suspicious character with local treatment only, until our diagnosis is confirmed by the presence or absence of the secondary symptoms. In this way we are in a position to better impress our patient with the importance of continued regular treatment if our suspicions regarding the positive character of the lesion are confirmed. He is then not likely to have those long, tedious and ever-doubting days so often noticed during the course of a two or three-years treatment, when the unfortunate layman will be told and, perhaps, will begin to think, that the doctor has made a mistake in his case and that he never had such a dreadful disease, as otherwise, he would not be well now; or, perhaps, he turns to the other side and places the doctor on the plain of commercialism, and believes he is bleeding or robbing him systematically of his money. Such a quandary leads to neglecting his treatment, and the devastation of syphilis is observed upon this man and his children.

I believe when we have one of these doubtful sores—and all sores on the genitals are doubtful—we should make a plain statement to the patient, that this might be a specific poison, and that local treatment ought to be instituted until times makes it possible by watching its progress to determine definitely the character of poison. We would thus be enabled better to eradicate it from the system, and have the

patient help look for secondary symptoms if these are to be expected. This will convince him of your interest and care, and when he sees the evidence you will have proven your case, your ability and his confidence in your ability is established, and you will surely hold him for the proper long course of treatment.

The blood serum test promises much in clearing every diagnosis, but we find the reactions are sometimes misleading clinically, and it is not always possible to have these cultures made. Besides, a report from a drop of blood, made by an unknown pathologist, does not carry the convincing weight to a layman, who has to take medicine for about three years as does the sight of those deep, lasting splotches of a secondary eruption.

To illustrate my views and make them clearer, I want to report an interesting case or two:

About six years ago Mrs. Blank, white, about twenty-four years old, a bright and attractive widow, employed as stenographer in a government office, where she was intimately associated with clerks and callers in her chief's reception room, consulted me.

Examination showed an uncertain sore about the genitalia; she could not tell just when it made its appearance, and stated that she had had irritation there before but no history as to any certain exposure could be obtained, as she said: "I don't know just whom to blame." Painful urination, some edema, and later enlarged inguinal glands appeared with some tenderness. I explained, very much as above, my inability to be certain as to the form of sore and its outcome. I told her what it might be, and the importance of local treatment and watching the case. Sure enough, my prediction as to its developing a rash came true, and she was convinced of the nature of her trouble. I sent her to Hot Springs for treatment until the rash had disappeared, when she returned to her work, with lesions unobserved, and faithfully carried out her long course of treatment with, thus far, a perfect recovery.

Mr. M., a magnificently developed white male, about 26, presented himself to me about ten years ago, bringing a copy of prescription and the pills from a very noted man of Philadelphia. He was a very intelligent man, and was much troubled over a crop of sores recurring. The very same sores had been healed a short time before. He seldom indulged in intercourse, which did not correspond with the outbreak. This was the second or third attack during a few months. He was on a specific treatment. I was quite sure he had herpes, and not syphilis, so discontinued all internal medication. Local treatment to the sores healed them for a time, only to recur.

Having a long prepuce, I circumcised him, and put him on stomach tonics, alternating with bromides. Small herpetic patches occurred occasionally for a year or so. With all my energy and talk he was hard to convince he did not have syphilis. After two or three years he was convinced, then married, has two children, one in school, and never a symptom of syphilis has shown in this family.

Recently a young, newly-married man came to me from the South; he sowed wild oats seven years ago while at college, and reaped such a harvest of sores, with pus and corruption, he was compelled to return home and go under the care of his family physician. The condition was diagnosed as gonorrhea, chancroids and suppurating buboes; one of the latter was lanced and one ruptured after poulticing; he had a long and exhausting sickness. Two years after this a slight traumatism caused severe periostitis, and was treated by rest in bed; mercurial inunctions and large doses of iodide. Without comment his surgeon stated he would absorb the enlarged nodules. His visit here was to be treated for some sores covered with crusts, below the knee, which, when healed, would leave dark ring-like discolorations, and would recur near the old ones. In consultation, Dr. Carmichael made a positive diagnosis of teritiary syphilis. Had this case been diagnosed early, what a difference there would have been in this man's treatment and life. He married a fine young woman, not knowing that he had even had syphilis and a neglected case at that.

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

The Importance of Differential Diagnosis Between Chancre and Chancroid.

REPORTED BY FRANCIS E. HARRINGTON, M. D.

DISCUSSION OF DR. WADE ATKINSON'S PAPER.

Dr. Hagner does not believe chancre will develop later than three weeks after exposure.

Many chancres begin as herpes. One blister will develop into a typical chancre. Double infection often takes place. Cited cases of two men who had relations with the same woman, one showed a small chancre, the other a large one, of the Hunterian type. The woman presented no signs of syphilis on the genetalia, but a healed sore was found on the tongue. The first case was cured; the second, after five years developed locomotor-ataxia. Cauterization changes the appearance and often makes diagnosis difficult. Urethral chancres often escape notice, and in ninety-five per cent. of cases are found in the first inch. Extra-genital chancres are rare, and, if found, are generally secondary. Quotes Dr. Justin in that enlarged injections of mercury hæmogoblin drops 25 to 30 per cent. in syphilis. Wassemann reaction is used in old cases presenting old symptoms to determine if the condition is latent. Case history is important, and patients will often magnify their symptoms, which are often misleading. The spirocheta pallida is unquestionably present upon examination of the serum from the sore, and the diagnosis can be absolute, and when this is present with gland-chains, treatment should be instituted at once. In extra-genital findings the spirocheta show a different picture under the microscope.

Dr. Atkinson asked if there was any harm in waiting until secondary symptoms were present to begin treatment?

Dr. Hagner replied in the negative. Unless there is no element of doubt. Where the spirocheta is not found, delay is not harmful. If found, treatment is immediately indicated. Late cases are difficult of diagnosis. The transmission of syphilis to an infant is unmistakable evidence that the mother has had the disease. The fever is irregular, and has been mistaken for typhoid or malaria. There is a tropical form of chancre in which a mistake can easily be made. In his experience immediate treatment after the demonstration of spirochete has given the best results. Excision of the chancre removes a greater number of the organisms and general manifestation is lessened. Inoculation of monkeys has proven that friction is necessary. Prophylactic measures, such as inunction of mercurial ointment, prevents infection.

Dr. Fuller demonstrated the microscopical attachment of special stage and brilliant illumination for demonstrating the spirochete.

Dr. Hickling quoted authorities advising waiting in all cases until secondary symptoms appear, thus lessening the sequelae and nervous manifestations. Does not believe this the best course, but thinks a diagnosis should be made in the primary stage, and treatment instantly begun. Syphilitic treatment in cases where a diagnosis is not certain, is harmful. Believes that the after-effects of syphilis are lessened by early treatment when a positive diagnosis can be made. But little harm is done in waiting, to be sure. Believes that ninety per cent. of epilepsy after the twenty-fifth year is due to syphilis. Locomotor-ataxia may be due to it. The Wassermann reaction will prove that some cases of tabes are not due to specific infection. Believes fifty to eighty per cent. have been attributed to syphilis. Anti-syphilitic treatment generally fails to impress cases of tabes. In diagnosis, the eye presents an interesting picture, represented by the cut-out corner of the iris, and this symptom, when present, is pathognomonic. The hypodermic treatment has been satisfactory in his hands, no accidents resulting. He uses gr. iss hypodermically for six to eight consecutive weeks.

Dr. J. D. Morgan asked if syphilis is not becoming milder—that is less severe than it was twenty or twenty-five years ago?

Dr. Hagner believes that it is milder than twenty-five years ago, but no less severe in the past ten years.

Dr. Hickling believes that phagedena is not due to the simple infection, but due to secondary or double infection.

Dr. Copeland asked why the epitrochlear gland should be especially affected.

Dr. Hickling replied that in his experience it was only part of a femoral gland enlargement.

Dr. Macatee stated that Osler's treatise is borne out in fact, and that the laboratory finding of the spirochete is universally acknowledged. Does not believe delay is proper, just because the organism is not demonstrated. In the use of the apparatus the dark sub-stage demonstrates the presence of the organisms by the slanting ray. The irregular pupil is due to a previous iritis affecting the circular fibres and causing adhesion. In locomotor-ataxia the posterior roots suffer more than the anterior roots.

and if the process is stayed under anti-syphilitic treatment, the inhibition may be permanent.

Dr. E. Lee Morgan, applying evolution to the question believes that the germ has always been the same, possibly has become more or less virulent. Pre-Columbian bones have been found that show syphilitic lesions. Believes that the complete destruction of the chancre is the proper treatment. The health authorities of the community or State should endeavor to prevent the spread of venereal diseases by requiring report of cases and by the inspection of prostitutes, as is the case in European countries.

Dr. Gwynn cited a case under his care three weeks after exposure, in which the patient developed typical sores. An examination failed to show the spirochete. A later history from the patient showed a more recent exposure to gonorrhea, leading to the supposition that the sores were chancroids. Two of the ulcers healed. The third lasted one month, and was followed by secondary symptoms.

Dr. J. D. Morgan cited treatment of cases in past years, when nitric acid, calomel and mercury, with opium pills were used. Calomel and chalk were administered for three months, and calomel for one to one and a half years. Results in these cases were always satisfactory as far as he was able to follow up the cases to-day.

Dr. Atkinson, in closing, stated that he understood the demonstration of the spirochete, but has found no authority holding that this is the specific organism of syphilis. He believes that excision of the sore impresses the patient and has a much better result. When secondary symptoms have developed following the waiting period, the patient often loses heart and the physician's control over him is greatly lessened.

AMERICAN PROCTOLOGIC SOCIETY.

(Continued from last issue.)

The Treatment of Rectal Fistula.

By J. RAWSON PENNINGTON, M. D., Chicago, Ill.

Three methods of treatment were referred to—viz., simple incision, the injection of bismuth paste, the incision, or excision, with immediate suture (proctorrhaphy).

Of the *simple incision,* he said, that those of us who are operating quite frequently for this malady know its disadvantage, drawbacks, and frequent failures to cure, and that this operation has done more than any other, unless it be that of the ligature or clamp and cautery operation for hemorrhoids, to bring disrepute upon rectal surgery. The laity dread a rectal operation more than any other surgical procedure, because of the fear of pain, the fear of recovery and the fear of loss of control over the bowels. Yet we know that each of the above operations in the hands of experts gives good results.

Concerning the injection of bismuth paste, he said that to treat a rectal fistula the paste is liquified by heating in a water-bath, and injected into one of the openings with a metal or glass syringe. The other opening, or openings, are kept closed by an assistant while the injection is being made. Enough force is used until one feels reasonably sure that all tracts and diverticula have been filled. The paste may be forced into some line of cleavage if too much tension is used and carried along this line to some distant organ or healthy tissue and deposited there with deleterious results.

Of excision or incision with immediate suture (proctorrhaphy), the author thought this method is the most rational of all surgical procedures, and he dissects and removes the entire tract when a probe or director can be passed through the fistulous channel and into the rectum. He then searches out and removes any diverticula or tracts connected with the main tract. If this cannot be, or should not be done, he then incises the fistula and dissects out all granulation tissue. If needs be, the wound is disinfected with carbolic acid and alcohol.

Suturing the wound may be done by Lembertizing the line of incision from its termination in the rectum to the anus. The ends of the severed sphincters, as well as the deeper portions of the incision, are next brought together with interrupted catgut sutures. The skin and fascia are sutured with interrupted silkworm gut. He dresses the wound with iodoform or plain gauze and applies a T-bandage. He maintains that proctorrhaphy, or the paste, or a combination of the two, offers the nearest approach we have to the ideal method of treating extensive rectal fistula.

The Tuberculin Reaction in Cases of Perirectal Infection.

By COLLIER F. MARTIN, M. D., Philadelphia, Pa.

The author was so impressed with the frequent coincidence of pulmonary tuberculosis and perirectal infections that he began a series of tests and examinations to determine their relation.

He uses the Moro tuberculin reaction, combined with physical and bacteriologic examination. In his preliminary report of thirty-six cases, which he divides into two groups, he got the following results:

Group I.—Rectal pyogenic infections, including here fistulæ, abscesses and deep rectal ulcerations. There were twenty positive reactions out of twenty-one cases. The negative case was one profoundly tuberculous.

Group II.—Non-pyogenic rectal cases. There were eleven cases, including hemorrhoids, fissure and catarrhal proctitis, with three positive tuberculin reactions. This, he holds, is probably the ratio of tuberculosis in this class of cases. One negative case in this group was intensely tubercular, with extensive lung lesions evident, and with abundant tubercle bacilli in the sputum.

Accepting the tuberculin test as a specific one, he got 100 per cent. positive in Group I, and about 36 per cent. in Group II. The four cases giving negative reactions, yet being proved tuberculous by sputum examination, proved to be of very low resistance, two dying in a few months and two at present in a precarious condition.

He emphasizes "continued history taking" as being extremely valuable to the proper appreciation of the case.

The author places particular stress on the prognostic value of the tuberculin test.

Accepting the positive reaction to tuberculin as indicative of a tuberculous lesion somewhere in the body, his conclusions are as follows:

1. Two consecutive negative reactions with no physical signs in evidence is conclusive proof of the absence of such lesions.

2. Two consecutive negative or feeble reactions, with physical signs of a lesion somewhere, is indicative of a very grave prognosis.

3. The degree of the reaction is directly proportionate to the degree of the resistance of that individual.

4. That the tubercle bacillus, like no other, reduces the bodily defences to pyogenic invasion.

5. That in practically all rectal pyogenic infections there is a tuberculous lesion somewhere in the body.

6. That the classification of perirectal infections into tuberculous and non-tuberculous is untenable.

His investigations have caused the author to raise the following questions:

1. Is the primary tuberculous lesion pulmonary?

2. Is the local infection tuberculous?

3. Do the tubercle bacilli gain entrance into the body through the respiratory or the alimentary tract?

4. Is such infection carried to the rectal and perirectal tissues by the blood current, the lymphatics, or directly, by the fecal current?

5. How does the tubercle bacillus influence the pyogenic infections—locally, as in mixed infection, or by lowering the body resistance to the invasion by pyogenic bacteria?

Lane's Conception of Chronic Constipation and Its Management.

By A. B. COOKE, M. D., Nashville, Tenn.

In his monograph entitled "The Operative Treatment of Chronic Constipation," Mr. Lane first defines the scope of the treatise by stating that the term, chronic constipation, as he employs it, includes all those conditions which are "the consequences of the accumulation of material in the intestinal tract for a period sufficiently in excess of the normal to produce on the one hand alteration in the gastro-intestinal tract, and in other viscera, and on the other hand toxic changes from absorption." The fact is emphasized that while constipation is usually marked by infrequent hard stools, there may be a daily evacuation, and in exceptional cases the motions are loose and frequent.

The two chief pathologic factors in the production of chronic constipation, according to the author, are enteroptosis and acquired mesenteries or adhesions, the latter resulting not from inflammation, but being developed to oppose the displacement of viscera, the tendency to which exists whenever the erect posture of the trunk is assumed. The displacement and fixation of the several portions of the colon in faulty positions result primarily

in defective drainage, and secondarily in auto-intoxication and pathologic changes both in the gut itself and in the other abdominal viscera.

After describing these changes in detail, the author proceeds to discuss their immediate and remote effects, advancing the idea that in many cases diseases of the appendix, gall-bladder, stomach, duodenum, pancreas, kidneys, ovaries, etc., must be regarded as sequelæ of chronic constipation. In addition, the phenomena resulting from toxic absorption are graphically described and the importance of their recognition stressed.

With reference to treatment, Lane states that "in no circumstances should operative interference be contemplated till the surgeon has satisfied himself that every means of treatment has failed, whether medical or mechanical." The surgery indicated depends upon the conditions present. In mild cases in which non-operative measures have failed, division of the adhesions and constricting bands may be effective. Severer cases call for more radical surgery, consisting either in dividing the ileum and anastomosing it with the sigmoid or upper rectum, thus short circuiting the fecal current, or, when pain is a prominent factor in the case, removal of the colon in addition.

The writer of the paper, after personal observation of Lane's work, regards his conception of the nature and management of the malady with much favor, and thinks it entitled to serious consideration at the hands of the profession.

An Unique Case of Laceration of the Sphincter Ani.

By A. B. COOKE, M. D., Nashville, Tenn.

On February 26, 1910, the patient, a boy, 7 years old, was brought to him at St. Thomas Hospital, accompanied by his father and physician. The following remarkable history was related: About noon on the day named, the boy, who lived on a farm, went out to his favorite place behind the corn-crib to attend to a call of nature. While engaged in the act a pet dog, a hound of middle size, came up from the rear and mounting him affected entrance into the anus and became accoupled. The boy's outcries quickly brought his mother upon the scene. The dog had reversed his position and was in the same relation to the boy as is ordinarily assumed in the natural act with a bitch. The mother's excitement was naturally marked, and in her frantic efforts to disentangle the two she used considerable violence, and finally succeeded in separating the dog.

The family physician on his arrival found that the hemorrhage had practically ceased, but upon inspection of the bowel found the parts were badly lacerated and advised the patient's removal to Nashville for treatment.

Examination showed little evidence of external injury. On traction upon the anus, however, several internal lacerations of considerable extent were found. Under general anesthesia the deepest of these proved to be in the middle line posteriorly, extending from a point two inches up the rectum through the sphincter muscles and out upon the skin surface for a distance of approximately one inch. The external sphincter was torn in two places at this site, one tear being complete and other partial. Anteriorly, there was a second laceration, into, but not through, the fibers of the sphincter. In addition there were a number of minor tears in the anal margin involving the superficial tissue only.

Fourteen interrupted catgut sutures were used in repairing the posterior laceration and four in the anterior one. The others did not require suturing. The result was entirely satisfactory. Union was prompt and complete and the patient returned home in two weeks with perfect sphincter control.

Multiple Adenomata.

By GEORGE W. COMBS, M. D., Indianapolis, Ind.

An adenoma is the result of an increase in number and a crowding together of elongated and enlarged secreting follicles. It is an exaggeration of epithelial cells. This epithelium is prone to penetrate the basement membrane. When it does so and reaches the muscularis and other sub-mucous tissues, it is malignant. Irritation causes the transformation from the benign to the malignant. This irritation may be through the normal function of the bowel, that caused by parasites, or as a result of surgical removal singly. Surgical disturbance in situ of a benign adenoma, a widening experience shows, will be followed by malignancy.

A case was reported in which occurred the malignant degeneration without surgical in-

terference. This does not necessarily show an inherent tendency of benign adenomata to malignancy, but the adenomata, through the factor of irritation, predisposes the patient to cancer. In the case to which reference is made above, one or more of the adenomata low down in the rectum had undergone the malignant transformation. On account of the extent of involvement and the extreme exhaustion of the patient, extirpation of carcinoma was deemed inadvisable, but a left colostomy was made, reaching a portion of the sigmoid above the growth limit. The tenesmus and diarrhea were at once relieved and the patient made comfortable until the carcinoma reached the cutaneous margin. Through the colostomy lavage was administered, the solutions being normal salt, boracic acid and sodium salicylate. The adenomata between the colostomy wound and the carcinoma, through functional rest of the bowel and cleanliness, disappeared.

If degeneration has not taken place, a colostomy—right or left, and high enough to get above the growth limit—is advised, and through this soothing and cleaning solutions used, rather than the removal of the whole bowel proximalward above the high limit of growth. The latter is a very serious operation for the strong and one in which the mortality will necessarily run high in these patients, as they present themselves usually late in the disease.

After malignant transformation has taken place it would seem useless to remove the malignant portion unless the entire bowel involved may be removed at the same time.

Some Observations on the Pathology of Multiple Adenomata.

By JEROME M. LYNCH, M. D., New York, N. Y.

The author presented the results of his observations on two interesting cases of rectal multiple adenomata. He hoped that others would be sufficiently interested to record and report their own cases and that our admittedly scanty information on the pathology of this unusual and serious diseased condition would be materially added to.

It was his impression that approximately 46 per cent. of recorded cases of this adenomata terminate in cancer, and that the ultimate results are commonly fatal; yet the scientific investigation of these tumors has been so comparatively rare and isolated that our actual knowledge of the causes and conditions is lamentably meagre. It may be said that the pathology is not at all established.

LOCATION.

According to Lichtenstein, the relative number of instances of these tumors in the different parts of the intestinal tract is indicated in the following arrangement: Rectum, ileum, colon, ilio-cecal valve and duodenum.

Malignant degeneration naturally affects the parts named in about the same comparative order of distribution, with the exception of the ileum, this latter being less exposed to insult by reason of the fluid condition of the feces in that region.

It may be noted that these tumors usually manifest themselves in patients between 25 and 35 years old, and the malignant degeneration consequently occurs much earlier than cancer usually occurs. About 50 per cent. of the cases collected from the literature were under 35 years of age.

A brief summary of the current theories followed.

PATHOLOGICAL FINDINGS.

Several tumors were removed from each case, from the smallest size to the largest. The smaller tumors—that is, those that had recently sprung up—were shown to be composed mostly of granulation tissue, which showed numerous small blood vessels and interstitial fibroblasts. The entire structure is infiltrated by an acute exudate of leucocytes and serum, showing an acute inflammatory process. At the base of the polyp are a few slightly hypertrophied but rather typical glands. The surface epithelium over the polyp shows complete desquamation. The tumor appears to be composed almost entirely of an inflammatory granulation tissue.

DIAGNOSIS.

Inflammatory Tissue Polyp.—The section through the large polyp, taken from the same individual as the above, but at an advanced stage, showed a growth composed of adenomatous glandular proliferation. There is a narrow peripheral margin in some places about the growth, which shows granulation tissue. The greater part of the growth about the periphery is composed of simple adenomatous glandular proliferation. Throughout the polyp

there is an exudate of serum and leucocytes, the latter showing a predominating number of eosinophiles. There is complete desquamation of the superficial epithelium. Some of the glands in the adenoma appear typical, but the greater number are very much larger than those of the rectal musoca, and are in a condition of marked hyper-secretion.

Adenomatous Polyp.—These two reports were selected as being typical of what was found in the small and in the well-developed tumor, and go to show an inflammatory starting point, with a later proliferation of glandular tissues, which corresponds to a great extent with the findings of Lebert and Schwab. Much more might have been learned had the writer been fortunate enough to have secured a post-mortem on the case that died, as he was confident some of the tumors in the upper part of the sigmoid would have shown carcinomatous degeneration. Again, a section through a growth, down into the bowel, might have thrown some further light on the subject.

He hoped to continue the investigation when another opportunity offered.

Reports of cases followed.

Skin Manifestations of Amebiasis.

By JOHN L. JELKS, M. D., Memphis, Tenn.

The author had observed cutaneous affections among a number of persons suffering with chronic amebic infection. In April, 1909, he reported cases before the annual meeting of the Desoto County (Miss.) Medical Society. In May, 1909, he made similar allusions to these conditions before the annual meeting of the Arkansas State Medical Society. Again in April of the present year at the Tennessee State Society, in a paper, "Amebiasis, Complicated in One Instance by Pellagra, in Another by Eighteen Adenomata," he referred to these associated conditions.

In one case, observed two years ago, with very chronic amebic infection and ulceration, the patient had for more than forty years observed that the skin lesions, which were erythematous and macular, and at times edematous, depended very largely upon the condition of the bowel at that time. This patient was returned to her family physician as incurable, owing to the scarred, distorted and stenosed condition of the bowel. She has since died, apparently from exhaustion produced by a most extensive desquamative dermatitis.

Another case, which was observed in the winter of 1908-1909, of chronic amebic ulceration, with liver abscess complicating, presented extensive macular, papular and pustular skin lesions which quickly cleared up under treatment, which was directed solely to the intestinal infection and ulceration.

Recently a case was presented which had been diagnosed by several able physicians and skin specialists as one of pellagra. The case presented all symptoms of amebic infection, which preceded the skin lesions, and the author found the *ent-ameba hystolitica* in the mucopurulent material taken from the rectum, and concluded that the condition known as pellagra may have its solution as to etiology when systematic examinations are made for parasitic infections and intestinal conditions.

The author expressed the belief that those may help explain the prevalence of the condition known as pellagra in the South. A report of six cases was presented in support of his views, and he emphasized the singular coincidental, if not consequential, skin lesions in so many chronic amebic cases which have been observed by him and which responded to treatment directed solely to the intestinal infection and ulceration. He quotes other authority, both in this and other countries, which are supportive of his views.

(*Continued in next issue.*)

Correspondence.

MORPHINE CASES.

Editor Virginia Medical Semi-Monthly:

Dr. ——— applied for treatment May 28th; age 62; weight 100 pounds. Temperature and respiration normal. System very weak. Had perhaps one of the largest practices in the State. Had tried again and again to break the morphine habit, but had lost the power of resistance and gave up the fight. Commenced treatment at 6 P. M. on day of arrival in the city. Was at once placed in the hands of a trained nurse, and a hot bath ordered, followed by an enema. Four of the following pills were now given in connection with 10 grains blue mass:

℞. Ex. Colocynthidis Comp. 1 gr.
Ex. Hyoscyami
Ex. Jalapæ aa 1-2 gr.

Ex. Leptandræ.
Ex. Podophylli aa 1-4 gr.
Ol. Menthæ Pip. 1-8 M.
Oleoresinæ Capsici 1-10 M.
Zingiberis 1-2 gr.
Ol. Tiglii 1-25 M.
M. Ft. Pil. No. 2.

When these pills began to act, he was given 6 gtt. of the following mixture:

℞. Tr. Belladonnæ, oz. 2.
Fl. Ex. Xanthoxyli.
Fl. Ex. Hyoscyami aa oz. 1.

M. S. Give six drops every hour, increasing 2 gtt. every six hours until 16 gtt. are taken every hour. On the second day his throat became dry and the pupils dilated, followed in a few hours by delirium, which persisted for forty-eight hours. The mixture was at once stopped until delirium passed off, then renewed again in 6 gtt. doses every hour as before. Fourteen hours after this first dose of mixture, the pills were renewed in same dose with same dose of blue mass. With first dose of mixture he was given one-third of his daily dose of morphine, divided into three doses and one given one-half hour apart. The pills were repeated in six hours after the last dose of morphine. After the bowels moved, one-third of his usual daily dose of morphine was given, divided into three doses and given one-half hour as before. Twelve hours after this last dose of morphine the pills and blue mass were repeated, and six hours later two ounces of castor oil was administered, followed by sixty or seventy stools. He was now sustained by hypodermics of Phos. Cod. 4 grs., and Strych. nitrate 1-20 gr. every three hours and nourishing broths. At no time was he permitted to get beyond the sight of the nurse. At the close of the fourth day he expressed himself as being comfortable, and turning to his son, a physician of this city, said "I want no more morphine. The craving is gone." His appetite was now returning and his sleep more natural. Left for home July 22nd. He said on leaving me: "I have gained 17 pounds since treatment. Feel all right, eat and sleep well. I will send my friend, Dr. B., to you."

Dr. T. applied for treatment June 18th; age 38; weight 118 pounds. Temperature 99 1-2; respiration normal. Had large practice and worked hard until health gave away. Had spent six weeks in a sanitarium in North Carolina at a cost of $300, with no material benefit. Was taking from 60 to 70 grains of morphine and from 40 to 45 grains of cocaine daily besides large quantities of alcohol Had at one time spent ten days without food or an hour of sleep. His body and limbs were covered with the punctures of the hypodermic needle to such an extent that it was difficult to find a square inch of sound skin except near the spinal column. Was in a collapsed condition. He was at once given a good dose of morphine and cocaine to brace him up. He had not slept for four days previous to his arrival. He was placed in the hands of the nurse and the same treatment given as in the previous case, changed only to meet his personal peculiarities. His condition at this time was wretched in the extreme; not still a moment; movement in jerks and starts. No appetite. Muscular coat of bowels seemed in a state of semi-paralysis, and peristalsis did not commence until the third day. Perhaps some 60 or 70 stools followed medication. June 22nd gave morphine and cocaine each 2 grains. At 11 A. M. same day gave Phos. Cod. 2 grains. June 23rd, 4 A. M., gave cocaine 1-4 grain. This was his last dose of cocaine. At 1 A. M., same day, gave morphine 2 grains. This was his last dose of morphine. Thence on the case progressed satisfactorily, giving Phos. Cod. 4 grains and Strych. nitrate 1-20 grain every three hours to allay nervousness. June 24th, slept seven hours and the following night slept all night. Left for home on the thirteenth day. His brother, a physician, writes me under date of July 6th: "I went to see brother yesterday. He is in fine shape; good color; cheerful; eating heartily and in every way he is in a satisfactory condition." Under date of July 21st, he writes: "Brother is *well;* has a big practice and is getting fat." Under date of July 30th, he writes: "Brother is doing finely; attending faithfully to a large practice; full of life and old-time vim; eats well; sleeps well; weighs more than he ever did in his life and has not an ache or a pain." Dr. T., himself, writes under date of July 25th: "The improvement of my general condition since leaving you has, in my judgment, been remarkable. Every one speaks of the rapidity with which I have gained in weight. On reaching Richmond I weighed 118 pounds. The day before I left I weighed 120 pounds. Twelve days

after I weighed 136 1-2 pounds, and at the end of three weeks I weighed 142 pounds. I am in a healthier condition than I have been for seven years. My sleep is refreshing and my nerves have not been as steady for many, many a day. My work is now a pleasure. I average eleven visits and see eight office patients a day. This treatment is the most certain and the most scientific that has ever or will ever be advocated for the cure of morphine cases. I was a mental and physical wreck, yet in four days all craving for morphine was gone and there was no need for artificial support. I had tried 'homes cures' and had spent six weeks in a 'sanitarium,' but was not well an hour there or after I left. I now weigh 146 1-2 pounds, 3 1-2 pounds more than I ever weighed before."

Any physician who wishes to write to Dr. T. or to Dr. ———, if he will drop me a line to that effect I will cheerfully forward the address of both. The treatment stands upon its merits and its best endorsers are those physicians and others who have been cured and hold themselves ready to answer all letters of inquiry.

Up to this time there has not been a failure.

(a) No physician should attempt to treat himself; (b) the patient should be confined to his bed; and, (c) should be in the stands of a *trained* nurse and not permitted to get beyond her sight a moment.

J. W. Williams, M. D.
2214 *East Broad Street, Richmond, Va.*

Book Notices.

Education in Sexual Physiology and Hygiene. By PHILIP ZENNER, M. D., Professor of Neurology, Medical Department University of Cincinnati. Cincinnati. The Robert Clarke Co. 1910. 12mo. 126 pages. Cloth, $1. Carriage (6 cents postage) extra.

The purpose and teachings of this little book are good—to train the young minds of boys and girls as to the true purposes of the sexual functions and to point out the dangers of violations of the physiological and hygienic laws regarding the same. The book is a "physician's message" to the young. It is an effort to avoid the creation of prurience about evil matters of a sexual kind, and to cause avoidance of evil thoughts or acts in that direction. Mothers and fathers should read the book, and from time to time give instructions to their children. It is a book to be cautiously advised lest its improper reading lead to vices which are sought to be avoided.

Gynecological Diagnosis. By WALTER L. BURRAGE, A. M., M. D. (Harvard), Clinical Instructor in Gynecology, Harvard University, etc., with 207 Text Illustrations. New York and London. D. Appleton & Co. 1910. 8vo. 656 pages. Cloth, $6 net; half leather, $7 net.

The book before us has a number of attractions not usual to other books. Its illustrations are alphabetically arranged, giving, also reference to the page; its chapters are headed with synopses which tell the reader of the subjects of which they treat. It is a book especially intended for gynecologists, yet of very great value to the general practitioner as well, in that it points out the differences between gynecological and general diseases. It is especially useful to the gynecologist in that it gives differential diagnoses between the diseases of women which have at all similar signs and symptoms. Whoever examines it will be impressed with its special usefulness in deciding upon cases requiring operative intervention. It is a book as valuable for systematic reading and study, as for special references. In fact, few practitioners having it would be willing to part with it.

Editorial.

The University College of Medicine, Richmond, Va.

Ground has been broken for the foundation of the new University College of Medicine building, which will replace the one destroyed by fire last January. The plans for the new building, to occupy the old site, show a magnificent structure of elegant proportions and the work will be rushed to completion.

The temporary building, which will be used for the session beginning September 14th, is adjacent to the old site and convenient to the Virginia Hospital, where clinics are held. This building has been entirely overhauled and ar-

ranged most conveniently. Offices, reading rooms, dental laboratory and infirmary, class rooms, free dispensary and waiting rooms, together with a spacious lobby, will be on the first floor. On the second floor will be found the laboratories for bacteriology, histology, clinical diagnosis, the Pasteur Institute, and several class rooms. Other laboratories, such as those for medical and dental chemistry, botany, pharmacognosy, pharmaceutical chemistry, etc., together with several large class rooms, are on the third floor; while on the fourth floor will be a number of class rooms, the dissecting hall and the laboratory of physiology.

Taken altogether, the temporary building is exceptionally complete, convenient, and comfortable, as it has been recently equipped with steam heat throughout, is well lighted, and in every way suited to its new use.

More than $20,000 worth of new laboratory equipment and other apparatus has been installed, and the University College of Medicine will enter its eighteenth consecutive year with every prospect of success, notwithstanding its calamity of last January. Already the enrollment is larger than at this time last year.

While there has been a rearrangement of the chairs to meet the demands of the newly adopted curriculum, the personel of the faculty will be only slightly changed.

Polk's Medical Register and Directory of North America.

Messrs. R. L. Polk & Co., of Detroit, are now issuing the 1910 edition of their Medical Directory. Containing, as it does, over 2,700 pages replete with information pertaining to matters of medical interest, it would be practically impossible to enter into a detailed account of its merits. It is well worth its price of $10 to any one interested in a book of this description.

The Buffalo Lithia Springs Water Company

Announce the opening of their new bottling plant in connection with these springs, made famous by the purity and medicinal properties of its waters. All sanitary precautions have been taken, and the plant, which is thoroughly modern and up to date in every respect, is to be constantly under the care of a skilled bacteriologist. Since the reopening of the springs there has been such a demand for this water that the company finds it difficult to promptly fill orders.

The United States Civil Service Commission

Will hold examinations on October 5, 1910, at the usual places throughout the country, to secure a medical interne for the Government Hospital for the Insane. The position offers a salary of $600 per annum with maintenance, and promotions upon examination are given from time to time.

The International Medical Association for the Prevention of War

Will hold its first meeting in Paris during the summer of 1911. Dr. George Brown, Atlanta, Ga., secretary of the American Section, will personally look after the welfare and pleasure of doctors and their families who attend from this country. The aim of this association is to encourage doctors to use their influence, in the name of humanity, to protest against armed conflicts.

The Hygeia Hospital, Richmond, Va.,

Opened its doors for the reception of patients September 1st, after having been closed for the usual summer vacation. "Rest-a-Bit," also under the control of Dr. J. Allison Hodges, will continue open during the entire year.

Obituary Record.

Dr. Walter Peck Miller

Died at his home at Newport, Giles County, Va., September 2, 1910. Dr. Miller graduated from the University College of Medicine, Richmond, Va., in 1898, and located at Newport, where he greatly endeared himself to the community. He is survived by his widow, who was Miss Fannie Easley, daughter of Judge Easley, of Pearisburg, Va.

THE
Virginia Medical Semi-Monthly.
(FORMERLY VIRGINIA MEDICAL MONTHLY.)

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THE DIFFERENTIAL DIAGNOSIS AND TREATMENT OF RHEUMATIC ARTHRITIS AND ARTHRITIS DEFORMANS.*

By J. C. WALTON, M. D., Richmond, Va.

I appreciate the kind invitation of our distinguished president to prepare a paper for this symposium on the medical treatment of chronic arthritis. As the two most common conditions that the general practitioner is called upon to treat are rheumatic arthritis and arthritis deformans, and as these two diseases are so alike and so unlike and are so frequently confounded with each other, especially so as the two diseases may co-exist in the same individual, constituting what is known as the mixed type, and, furthermore, as they are so radically different in every way, both as to the etiology and treatment, it is of vital importance to be able at the beginning to clearly differentiate between the two. This is especially true with arthritis deformans, for, notwithstanding the gloomy prognosis of standard authorities, if early recognized and treated before the later changes in the joints, with destruction of the articular surfaces, and incurable deformity have occurred, energetic treatment will restore many to their former condition of health.

I shall take the liberty in this paper of quoting freely from Hugh Lane's most excellent monograph, "Differentiation in Rheumatic Diseases" (so-called). Lane's conclusions from careful analysis of over 3,000 cases of rheumatic diseases treated at the Royal Mineral Water Hospital, at Bath, were that the tendency for arthritis deformans to develop in the young is terribly on the increase. One of my worst cases (traumatic) was in a boy of 14, that made a splendid recovery. The rheumatic cases generally have a good family history, or at most a rheumatic history, and the general health will be good; conversely, in arthritis deformans the majority of the cases give or show a strumous taint. I am acquainted with a family in whom all the brunettes have arthritis deformans of the most inveterate type and all the blondes have tuberculosis.

Among the constitutional symptoms of arthritis deformans are general weakness, emaciation, anemia, arthralgia, muscular atrophy, the various neuroses and the patient is more or less crippled or deformed. My limited experience corroborates that of Lane, and with him I am inclined to look upon struma as cause and effect.

DIFFERENTIAL TABLE—(From Lane).

Arthritis Deformans.	*Rheumatic Arthritis.*
1. Nervous disease due to debilitating causes.	1. Following rheumatism always.
2. Its last stage is osteo-arthritis.	2. Has no connection with osteo-arthritis.
3. Symptoms constitutional as well as local.	3. More confined to joints.
4. Joints most used are the first affected, smaller joints first, running centripetally. Temporo-maxillary joints often affected. Symmetry of joints affected more noticeable.	4. Large joints often first affected running centrifugally, and chiefly joints affected that were attacked in previous acute rheumatism. Temporo-maxillary joints never affected. Not so often symmetrical.
5. Swelling typical, more or less fusiform, and with appearance of effusion.	5. Swelling as if solid enlargement of normal joint.
6. Deformity varying.	6. Greater tendency to fixation of joints in fixed position. Deformity in fingers is fixation in position of extreme flexion.
7. Anemia early and constant symptom.	7. Anemia, if present, a later symptom, and never so intense.
8. Many neurotic symptoms, especially early in the disease; sweating, headache, tingling, numbness, pigmentation of skin, etc.	8. Wanting; no headache, etc.
9. Very rarely have subacute attacks.	9. Greater tendency to subacute attacks.
10. Heart normal, but rapid in action.	10. Heart often diseased.
11. Hard rapid pulse.	11. Pulse varies according to state of heart.
12. Reflexes normal or subnormal.	12. Reflexes increased, especially later in the disease.

*Read before the Richmond Academy of Medicine and Surgery, June 14, 1910.

13. Muscular atrophy concurrent with, and often previous to, joint affection, and small muscles chiefly.	13. Muscular atrophy subsequent to joints being affected; often large muscles first.
14. Any age.	14. Adults and mostly over middle age.

My experience leads me to believe that the differences between rheumatism and arthritis deformans are of a far greater and more extensive character than the text-books would have us believe. As arthritis deformans is not a fatal disease and knowledge of its pathology is, therefore, more difficult to obtain, my plea is for a more thorough study of the disease and for an early diagnosis and treatment so as to prevent its ravages, and I shall feel amply repaid if I can arouse your interest in preventing or postponing indefinitely the serious results with which we are all, unfortunately, too familiar.

In the treatment of rheumatic arthritis, always search deeply for the underlying causes; keep the intestinal tract in good condition and the bowels open; diseased and enlarged tonsils should receive appropriate treatment; the more chronic the condition the less benefit you will receive from drug medication. Diet, water drinking, and active elimination through the skin are the sheet-anchors in treatment. Hydrotherapy, for its eliminating, tonic and invigorating effects is simply invaluable, and has more than held its own since the time of Hippocrates. Dry hot air and the local electric light bath afford great relief when there is much swelling and pain. Static electricity, the wave current and sparks with massage and vibration to the affected joints in conjunction with hydrotherapy approach an ideal treatment.

In conclusion, I will refer in a general way to the treatment of arthritis deformans, and it is to be greatly deplored that the text-books and the profession take such a pessimistic view in regard to this disease. I have gone rather fully into the diagnosis because so many of these cases have progressed beyond the possibility of help before a correct diagnosis has been made. Early recognition and treatment mean recovery, while a late diagnosis not infrequently means a life of helplessness and chronic invalidism. This is of vital importance, as the disease is on the increase in this country, and is much more common than is supposed.

In the treatment of arthritis deformans avoid carefully too active an elimination, and leave off all depressing agencies. Devote all of your energies to building up and sustaining the vital forces; an abundance of rich, nutritious food, life in the open, warm clothing, reconstructive tonics, iron, arsenic, cod liver oil, nux vomica, and in some cases small doses of thyroid extract, are beneficial, but don't lose sight of the fact that large doses may cause emaciation, and not more than three grains daily should be given. Hydrotherapy and static electricity, if intelligently and persistently used, will accomplish marvels in restoring these cases, and should always be used when accessible.

In illustrating the treatment, I will report two or three typical cases in closing:

Dr. E., referred by Dr. Phillips, age 60; bad family history, struma, tuberculosis and cancer; was very weak and anemic and emaciated. For nearly three years had been confined to an invalid's chair, and had visited many specialists. Was growing progressively worse. The temporo-maxillary, cervical and practically all of the joints were involved. He was ordered reconstructive tonics, hydrotherapy, massage and static electricity, the wave current and sparks applied freely to all the joints and to the spine twice daily, with a nutritious and liberal diet. Improvement rapid and progressive so that in three weeks he could, with the help of one crutch, walk around the Capitol Square. He made an average gain of two pounds a week and returned home at the expiration of ten weeks in fine condition, with the exception of some stiffness in one hip, due to an old adhesion which he declined to have broken up as he was thoroughly satisfied with his condition. He returned in about fifteen months suffering from a slight rheumatism from lack of exercise and overeating. A short course of hydrotherapy and electricity soon relieved him, and he was doing well at last accounts, and weighed more than ever in his life.

Mr. S., age 32, 5 feet, 8 inches; father living (age 65), health good; mother died at 40 from cancer of the breast; sisters and brothers all healthy; all of mother's family died young—around 40 years of age. Patient's health good until present attack in June, 1904; began with pain around the knee-joint like a sore tendon (and thought it was strained) followed by a hard, pea-like enlargement just above the patella, not painful and only caused a slight catch in walking. In July and August following, noticed a large puff about the knee; physicians diagnosed uric acid, gave hot-air treatment, medicines, etc., without benefit. About this time noticed effusion above knee-joint which soon became swollen, stiff and painful. During July, 1905, consulted a noted diagnostician, who pronounced it tubercular and advised operation. Shortly afterwards swelling was aspirated at upper part of the knee-joint and six ounces of clear fluid with some blood removed; stayed in bed four weeks. Effusion returning, patient was brought to my office for X-ray examination, which disclosed inflammatory exudate around the joint, with no bone enlargement; so I advised against

operation and suggested possible rheumatic disease and treatment along this line.

Notwithstanding this advice, he was operated upon three days later by an orthopedic surgeon of national reputation, who made two lateral incisions into the joint, thoroughly curetting and removing some granular looking material which he pronounced tubercular. The limb was strapped and put in plaster. Twenty-four hours later, the other knee became badly swollen and was aspirated, and six ounces of clear fluid removed, and the joint strapped with plaster, which, however, had to be removed on account of pain; and twenty-four hours after, another aspiration removed six ounces of clear fluid. The patient stayed in bed five months and then went around with the knee in a cast for two weeks, and the disease reappeared in the palm of the hand, wrist-joint and back of the hand. This was followed by pain and swelling in all the second phalangeal joints of the right hand, commencing first in the little finger, then appearing in the eighth and tenth dorsal vertebrae, the temporo-maxillary and other joints. The patient went North to consult his surgeon, and remained in the hospital three weeks. The cast was removed and a diagnosis of rheumatoid arthritis made. The patient was put on iodides and advised to exercise; returned home very slightly improved and was admitted to the Mecklenburg Sanitarium, November 5, 1905. He was pale, weak and very nervous, could scarcely walk, and joints were very painful and partly anchylosed; weight 128 pounds. He was placed upon a liberal, unrestricted diet and a free use of alkaline, mineral water, cod-live oil (Budwell's emulsion), Baruch tonic baths with hot water over the joints, static electricity—wave current and sparks over the affected parts. He made a gradual recovery with the exception of some stiffness in the knee-joint, which was broken up under H. M. C. anesthesia. Weight soon reached 145 pounds—his maximum.

The above case illustrates the difficulties sometimes experienced in the diagnosis of this disease by the most expert diagnosticians, as two of the men who pronounced the case tubercular easily stand at the head of their respective specialties—internal medicine and surgery. It also illustrates the happy results of judicious treatment in a disease that is usually regarded by the text-books and the profession as incurable. As there is no more hopeless or pitiable condition than an advanced case of arthritis deformans, an early diagnosis and treatment are vitally important.

The following case of traumatic arthritis deformans was referred by Drs. Osborne and Shands:

G. S., aged 14, weight 71 pounds, marked emaciation and anemia; hemoglobin, 50; hectic fever; pulse 125; joints very stiff and painful, so that it was with great difficulty that he could come to my office on the street-car even with the help of an assistant. Family history negative. Began treatment January 6, 1909, and was discharged April 15, 1909, in good condition, and made a complete recovery.

The patient jumped off a fence onto a stubble in August, 1907, causing a painful wound that was operated upon in June, 1908. This infected wound was followed by arthritis deformans, first appearing in the elbow joints, then in the knee-joints with effusion, both ankle joints, wrist joints slightly, the cervical vertebrae and the temporo-maxillary joints.

Treatment consisted of tonics, hydrotherapy, static electricity twice daily, with massage and high frequency currents, and good food. He regained his health and strength and is now a fine specimen of "young America."

Too much credit cannot be given Dr. Osborne for his prompt recognition of the true condition and his management of the case before it came into my hands.

At the risk of repetition, I wish, in closing, to say with all earnestness that the treatment of rheumatic arthritis should be anti-rheumatic, and that of arthritis deformans must be on tonic and reconstructive lines—*i. e.,* cod liver oil, arsenic, strychnia, iron, hydrotherapy and electricity; and, above all things, study thoroughly the case and make a correct diagnosis.

REPORT OF A CASE OF ACUTE LYMPHATIC LEUCEMIA.*

By E. F. COOKE, M. D., Houston, Texas.

Secretary Southern District Society, No. 9, of the State Medical Association of Texas; also Secretary Harris County (Texas) Medical Society, etc.

There are four diseases that, in their clinical pictures, closely resemble each other. These are leucemia, Hodgkin's disease, tubercular adenitis and lympho-sarcoma. That these diseases have each a separate and distinct entity is now generally admitted.

Between leucemia and Hodgkin's disease the differential diagnosis can only be made by a blood examination, Hodgkin's disease showing no changes in the blood, or perhaps an eosinophilia, while the changes that take place in leucemia are profound. These changes consist of a diminution in the number of reds and a corresponding decrease in the hemoglobin, with usually a great increase in the whites, and this increase is due to an increase in the mononuclear types, the polynuclears being diminished.

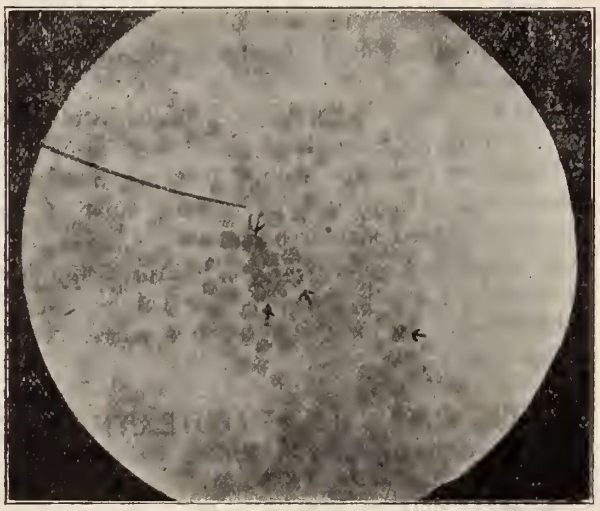
While for convenience of description leucemia is divided into lymphatic and myelogenous, the further division into acute and chronic is largely arbitrary, depending in each individual case on the duration of the disease.

*Read before the State Medical Association of Texas, at Dallas, Texas, May 10-12, 1910.

Acute lymphatic leucemia has the clinical appearance of an acute infection, with blood findings of a large increase in the large mononuclears.

Chronic lymphatic leucemia runs a more protracted course and shows an increase in the small mononuclears.

Protoplasm of large mononuclears outlined in blood of acute lymphatic leucemia.



CUT I.

Acute myelogenous leucemia shows a number of myelocytes in the blood and runs an acute course. It might be mentioned that the occurrence of acute myelogenous leucemia has been doubted. Chronic myelogenous leucemia shows practically the same findings, but is more protracted.

This brief resume is not intended to cover the ground, but to serve as an introduction to the report of the following case:

H. K.—White, male, aet. 9 years, 3 months, was referred to me on the eighth of January, 1910, by Dr. J. G. Boyd, for a differentiation between Hodgkin's disease and leucemia. I elicited the following history:

Family history—good. Both parents still living and in good health.

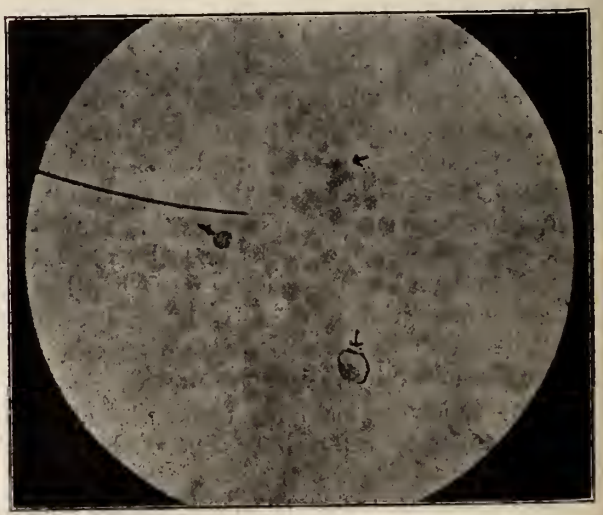
Previous History.—Stomach trouble when an infant, chicken-pox at four, otherwise well and strong, taking part in such games as football. There was no history of any severe blows or other injury. Attended school until two weeks before Christmas, 1909, but had not felt well for three weeks before he stopped—making beginning of symptoms about five weeks before Christmas. He had little short fevers, was easily tired and suffered from shortness of breath on exertion.

One week after these symptoms appeared, or about a month before Christmas, his mother noticed that his face seemed swollen and discovered an enlargement of the glands in the left axilla. His bowels had been regular, but appetite poor. Temperature had ranged from about 101 in the mornings to 103 in the afternoons. Slight cough for about six weeks.

Physical Examination.—Pulse 126; weak, anemic heart murmur; lungs show nothing abnormal. Spleen and liver slightly enlarged.

Lymph Nodes.—In the left axilla, the lymph nodes are enlarged—one to the size of a walnut. Right axillary glands enlarged to about the size of small beans. The glands in the groin are about the size of a bean. On the left side of the neck, the glands along the sterno-mastoid form a mass as large as a small orange, the gland at the facial groove on the same side being about the size of a pecan. On the right side of the neck, the glands are all slightly enlarged to about the size of peas. These glands are not matted together, but are all distinct and separate.

Blood Examination.—Two blood examinations were made, one on January 8, 1910, and



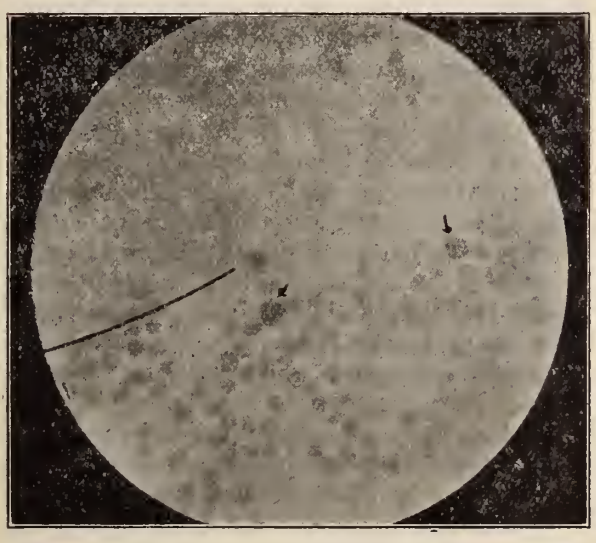
CUT II.

the second on January 13th. Two smears, obtained on January 8th, were forwarded to Dr. Terrill, of Galveston, and his differential count is here given.

	Jan. 8th.	Terrill's Count.	Jan. 13th.
Reds	2,200,000	.....	1,912,000
Whites	13,540	.....	10,000
Hb.	40%	.....	35%
Neutrop.	3.3%	1.75%	.99%
Eosino.	....	.26%	.33%
Basophiles.	1.6%	.25%	.....
Large M.	15.1%	15.25%	8.30%
Inter. M.	....	62.50	.....
Small M.	76.7%	17.50	90.05%
Transitional	....	1.25%	.....
Myelocytes	1.65%	.....	.....
Irritation F.	1.65%	1.25%	.33%
Normo-blasts	1.65%	.....	.33%

The red cells showed great variation in size with poikiocytosis. No plasmodia malariæ were seen.

Dr. Terrill, in reporting on this specimen, said that he had much difficulty in classifying the lymphocytes, as it was hard to tell the



CUT III.

border ones. Experiencing the same difficulty, I thought that there were some that were so evidently large that I classed them as such, and a glance at the table will show that Dr. Terrill evidently agreed with me. The others showed a more gradual range from small up to what Dr. Terrill classes as intermediate, so I classed them as small. These showed large nuclei poor in chromatin, with a rather narrow band of cytoplasm surrounding them.

The patient died on January 27, 1910, ten weeks after the apparent commencement of the disease. I am informed that four days before death the glands diminished very much—in fact, were not noticeable, but the anemia became even more severe, the lips being absolutely colorless, and the ears waxy in appearance. No post-mortem was obtainable. The acuteness of this case and the rather indeterminate class of lymphocytes found present elements of interest.

CANCER IN VIRGINIA — TRUSTWORTHY VITAL STATISTICS THE FOUNDATION OF PUBLIC HEALTH—THE ORGANIZATION OF A CANCER ASSOCIATION IN VIRGINIA.*

By STEPHEN HARNSBERGER, M. D., Catlett, Va.
Councilor from State-at-Large, 1908-'11, Medical Society of Virginia, etc.

The only reliable statistics of cancer are those of mortality, as cases of the disease are not reported. The mortality statistics are dependable, as they are gotten from death certificates.

The following data refer only to what is known as the registration area, that is, those cities and States which have satisfactory vital statistic records. The population of the registration area in 1908 was 45,028,767.

Number of deaths from cancer per 100,000 population in the registration area of the United States was as follows:

Year.	Deaths.
1880	26.05
1890	53.93
1900	63.09
1908	74.30

We see that cancer has increased in the United States from 26.05 per 100,000 population in 1880 to 74.3 in 1908. There were 33,465 deaths from cancer in the registration area in 1908, but as the registration area includes only a fraction over one-half of the population, we can well claim 66,800 deaths from cancer in this country during that year.

We are told that in the registration area for all ages one man out of thirty-two, and one woman out of eleven die of cancer. After the age of 35 one man out of seventeen, and one woman out of eight die of cancer. During this period more women die in the United States of cancer than of phthisis. The age of greatest frequency is between 50 and 54, when one man

*The author states he intended this article, which is of more special interest to Virginia doctors, for publication in the Semi-Monthly before the Norfolk meeting of the Medical Society of Virginia, and he was non-plussed to note its appearance in the August issue of a journal of another State.

in less than fourteen, and one woman in less than five die of cancer.

Number of deaths from cancer per 100,000 population in cities in Virginia:

ALEXANDRIA.

1903	27.4
1904	54.8
1905	47.9
1906	95.6
1907	61.4
1908	76.3

RICHMOND.

1903	67.3
1904	77.4
1905	66.8
1906	90.5
1907	79.1
1908	73.2

NORFOLK.

1903	81.3
1904	63.5
1905	69.0
1906	74.7
1907	73.0
1908	74.4

From 1903 to 1904, only one year, Alexandria shows an increase of deaths from cancer of 100 per cent. From 1903 to 1906, or four years, an increase of 68.2 per cent., and a decrease from 1906 to 1908, only two years, 19.3 per cent.

Richmond shows an increase of 23.2 per cent. from 1903 to 1906, and an increase of only 11.8 per cent. from 1903 to 1907; a decrease of 17.3 per cent. from 1906 to 1908.

Norfolk's death rate was 81.3 in 1903 and 74.4 in 1908, a decrease of 6.9 per cent.

The population of Virginia in 1900 was 1,854,000; by 1910 it should be 2,000,000. This would give us about 1,500 deaths from cancer this year.

What does this mean? It means the urgent necessity of compulsory registration of births, diseases and deaths. And it further means, as Surgeon General Wyman says, that the "physician in private practice is an important factor. Indeed, he is the first unit, in that on him devolves a duty of reporting the facts that naturally first come under his observation."

Trustworthy Vital Statistics the Foundation of Public Health.

If we want good water, we go to the source for it. Likewise, when we want a clear comprehension of disease and its concomitant characteristics we turn to statistics for it. Statistics incorporate facts extending over a period of time and their value consists not only in the fact that they afford physicians the opportunity to contrast the earlier with the later period, but they also show how much has been already accomplished, and what is still to be hoped for and may potentially be achieved by the application of sanitary science and preventive measures. Vital statistics mean less preventable deaths and less illness. In other words, vital statistics maintain or increase the number of effective producers, and in this way become a source of profit to any and every community.

Though existing facts may be recognized, if they remain as isolated items of consideration, they are of conjectural import, but if they are brought into a correlated series, they are at once transformed into determinate scientific data. No physician, however much his learning and unerring his judgment, can be as good physician without as with vital statistics. No health authority, however well equipped for and interested in his work, can adequately search for, or cope with, causes of disease and death without vital statistics. While the elements of error cannot be fully eliminated from statistics, they give us our nearest approach to a positive estimate of existing facts and conditions. For instance, mortality statistics, immature and limited as they are, exemplify the remarkable steadiness associated with the increase of cancer in Virginia, the United States, the world over.

It is not enough to say that vital statistics in this State "are very meagre and unsatisfactory." It would comport more nearly with truth to say "we have no vital statistics." Plainly looking at the mater, what do we find? Nothing beyond mere numerical particulars from a few towns only in Virginia. Now, in as much as vital statistics stand at the very foundation of public health, is not the attitude of this State remarkable? And does it not likewise indicate the supineness of those who shape and make our laws? Not that I wish to imply that the fault lies wholly at their door, for I am constrained to share the burden of blame with those who deserve it. This you will agree with me coincidently rests at the door of the medical profession itself. It is a sequence of the lethargy or, perhaps, and more likely, want

of concurrent interest and, therefore, of concert of action on the part of medical men.

It is a fair statement to make that the progress of our State Board of Health during the past year has been commendable and unlimited credit is due to the executive ability and efforts of those who have accomplished so much under obvious adverse conditions. That ample appropriations and powers in competent hands makes life more complete and with less of the scars of illness, notice what the *Times-Dispatch* says in regard to the August (1909) report on health conditions in Richmond: "This report shows that every dollar invested in protecting Richmond's health has borne compound interest from the date of investment." This same paper, in commenting on Virginia's schools, tells us that while the State's school ranking was thirty-fifth only four years ago, it is now eighteenth among those of forty-six States. From this step forward in public health and educational affairs, it is evident that our legislators must soon "take notice"; and this knowledge, as plainly as possible, emphasizes the fact that if we become a most important initiatory factor in the health and welfare of the State, that they will not long lag behind.

Furnished with trustworthy vital statistics, boards of health could always proceed with scientific thoroughness, their results coming out with something of the exactness of a laboratory experiment. The sphere of vital statistics is not fixed, but is constantly expanding, concurrently with the increasing population. As each ripple wells outward their value enhances.

Enough has been said to indicate that it is unquestionably evident that our knowledge of the prevalence, etc., of cancer and other diseases cannot be gained from our present requirements of registration and I, therefore, respectfully submit for your consideration, what seems to me, the only feasible and near-at-hand plan of lifting us out of our present embarrassing dilemma. No useful purpose will be served by waiting. To the physician, whose efforts lie in working to restrain the ill-effects of disease, time counts for everything. Legislators alone can look on with complacency, inasmuch as they, in their position, remain untroubled by the effects of disease and its mortgage on life. From both a public health and an economic standpoint, this matter appeals for just consideration. Then how shall we proceed? What shall we do? The law of action is ours. As the matter stands, it naturally falls in the domain of the profession and to the profession we have, therefore, in the first instance to look; and unless we are here led in the right way, we cannot expect to be placed upon right ground for dealing with the problem before us.

Evidence in every direction unquestionably shows that the enactment of salutary laws runs concordant with the interest present in the medical profession. The condition as it exists in this State (and elsewhere) is in antagonism with the showing in all modern advance in medicine and in spite of the advance of knowledge that has taken place. No one can question the assertion that it becomes necessary, with the progress of time, for our laws to be shifted to a considerable extent lest they be devoid of force and utilization. If we can get the people, who are most concerned, to co-operate with us in bringing about a vigorous sentiment for this and other reforms we have at heart, we will have the strength to prevail, for legislators can hardly fail to consider the will of the people Harmony in feeling and co-ordination in action mean united interests—mean power—mean success.

The Organization of a Cancer Association in Virginia.

Cancer is no longer to be regarded as a disease that alone concerns the surgeon and the person afflicted; it concerns every layman, philanthropist, economist—every well person.

Cancer is a frequent disease—local and curable in its beginning; malignant and fatal if left to itself.

After a general review of every important recent article, both domestic and foreign, on the cause of cancer, I am led to the conviction that its etiology remains an unsettled question. But even in the absence of a known etiology we have hope, for an approach has been made in the direction of indicating with some probability, if not certainty the relative value and quantitative character of trauma and prolonged irritation as predisposing factors. This rests upon the assumption that trauma and prolonged irritation decrease vitality and resistance; and this assumption seems to have the assent of clinical observation and experience. We know that by limiting the opportunities for its pro-

duction we can practically limit the incidence of the disease.

For instance, the four most frequently vulnerable points in the production of cancer are the breasts, the uterus, the lips and the pyloric end of the stomach. Why? Because these organs are the least rationally used and the most constantly abused.

To epitomise: The fact of a *painless* lump in the breast is a pre-cancer state and an indication for eradication.

Irregular or profuse uterine hemorrhages after the age of thirty-five is a pre-cancer state, and calls for the judgment of a physician.

A scale or an innocent looking and *painless* nodule, especially if on the lip and in a smoker, is a pre-cancer state, and is always to be regarded with suspicion.

Gastric ulcers and other intra-abdominal conditions with the symptoms of "dyspepsia" and gradual loss of weight under forced feeding, otherwise not accounted for and in the cancer period of life, stand within the bounds of cancer probably and call for the best diagnostic acumen of the profession.

In these and the instances of pertinent cases not cited, but upon which my remarks are founded, the boundary line of safety comprises the present, for it must be understood that danger becomes at once proportionally apparent through the medium of delay. To-day—to-morrow—this marks the line between safety and danger—between life and death. Absolutely there should be no to-morrow interposed.

Speaking upon the strength of my own observation and experience, I can unhesitatingly say that I have seen nothing to lead me to consider there is ground for surmising that delay means wisdom or even conservatism. As a matter of fact, such suggestions contribute to leading a person off in the wrong direction, and, if put into practice, could not do otherwise than produce a downright pernicious effect. Experience ought to throw a guiding light on the direction in which to apply our efforts for bringing a counteracting influence to bear on the public's notion of cancer. "The public," Crile says, "is entitled to all the enlightenment necessary for self-preservation."

An indictment against our present supineness is naively put by the following text quoted from a working man: "There are some folks whom society has got to pay for either at the beginning or end of their lives, and it is much cheaper to pay at the beginning." This economic side of the question has its place, but it is primarily to save our mothers and wives and to make safe our daughters that I make this appeal, for the welfare of home, society and government rests right here.

By making the public to understand the simple truths relative to cancer, knowledge becomes a source of power. It becomes wholesome and prophylactic by giving us command over pathological phenomena by enabling us, through the agency of a designed modification of conditions, to bring about a desired result.

Let us then do something to blaze the way for a better knowledge by the public, and perhaps also by many physicians, of the danger-signals of cancer. Let us put on foot a cancer association, that we may the better reach the public. The substitution of knowledge and care for ignorance and carelessness is in substance the entire program. Working in harmony with the Medical Society of Virginia, and the State Board of Health, and supported by the press—the ever active and efficient co-adjutor of all progress—the effort will not fail of results. Then, let us join hands with the people and, like kindred drops, be mingled into one in confidence and in purpose.

The dissemination of information concerning the incipient characteristics of cancer, through equipped official representatives from an authoritative source should, and would, inspire confidence and aid in neutralizing the doctrines of the unscrupulous and incompetent piratical quack, nature healer and others of like ilk—pernicious doctrines which now reach the firesides of every family in every community in this State, and, in the language of Milton,

"We double honor gain
From his surmise proved false."

PASSING OF THE INTERNE AS ANESTHETIST IN WASHINGTON, D. C.*

By C. N. CHIPMAN, M. D., Washington, D. C.
Anesthetist to the George Washington University Hospital.

The brief consideration of anesthesia at this time is promoted by the desire to offer something amenable to general discussion with the

*Read before the George Washington University Medical Society.

hope of extracting much of practical importance from the experience and observation of those whose opportunities are measured by abundant and fruitful examples.

Dr. Baldy, in his presidential address before the American Gynecological Society in 1908, stated that the general administration of anesthetics, as performed to-day, is the "shame of modern surgery, a disgrace to a learned profession, and if the full unvarnished truth of it were known to the laity at large, it would be but a short time before it were interfered with by legislative means, and properly so."

Joseph D. Bryant, M. D., of New York, makes the following remarks: "The comparatively recent, though limited, introduction of the skilled anesthetist has established a standing of most satisfactory and beneficent nature to all immediately concerned in operative practice." He also states, "I, myself, would prefer to receive anesthesia through the agency of the crudest means by skilled hands than from the wisest fashioned mechanism managed on lines of inexperience and theory."

F. W. Hewitt goes so far as to state that legislation is necessary before the administration of anesthetics can be placed on a safe basis. He points out that there is too much single-handed anesthetizing and operating done.

It is surprising how many men are graduating every year with little or no instruction on the administration of anesthetics. One has only to recall his own experience and feeling during the first few weeks of his apprenticeship at anesthesia to realize how thoroughly at the mercy of chance was the survival of the patient, and how utterly helpless he would have been had anything gone wrong.

I wish here to refer to an interesting case, which was among my first, and one that shows how easy you can get into trouble: Operation, extraction of teeth for an abscess and cellulitis of the sub-maxillary region. Man—short, heavy physique, short thick neck and fat cheeks; weight about 180 pounds. Chloroform was started slowly, caused some irritation, but he seemed to be taking the anesthetic very well, when all of a sudden there was complete closure of the larynx, with no air entering the lungs. His face was soon black and the pulse started to fail. The tongue was pulled out, jaw raised, artificial respiration, strychnine sulphate, grain 1-30, hypodermically, etc., without any signs of improvement. He was quickly put on the table and the surgeon did a tracheotomy, the pulse and respiration quickly returned to normal. The operation was completed. On taking a post-operative history, as none was taken before because he entered the hospital only a short time before the operation, we found that a few years before, he had taken chloroform to have some teeth extracted, when his life was saved only by a hastily performed tracheotomy.

Hewitt states on page 167 of his book, "There are perhaps no cases demanding greater care and experience on the part of the anesthetist than those in which extensive cellulitis of the sub-maxillary and cervical regions is present. When this inflammatory state attacks an obese, or thick necked and muscular man, when the infiltration of the cellular tissure is extensive, and when, as is not uncommon, the patient's habits as regards alcohol and tobacco, are intemperate, no worse subject for a general anesthetic exists."

If there be no other course than to induce general anesthesia, the lateral posture should be chosen, a closed Mason's gag introduced between the teeth, the C. E. Mixture slowly given to partial anesthesia, the tongue forceps applied if necessary and every provision made for immediate laryngotomy or tracheotomy should breathing become seriously embarrassed.

The above state of affairs has existed in Washington until within the last year, with the exception of two hospitals, and still exists in a few here and in thousands of hospitals in this enlightened country. Can we blame the externes or internes if the anesthetic is placed in their hands without previous instruction? No! they are, as a rule, a hard working and enthusiastic body of men eager for knowledge and ready to take advantage of every opportunity that will increase their practical ability. You place the anesthetic in their hands and they do their best and can in no way be blamed if, although ignorant and inexperienced, they are placed in a position of trust in the operating room, second in importance only to that of the surgeon. You can hardly blame the hospital managers or superintendents, for they act according to the wishes of their medical supporters. If any of us were going to be operated

upon, would we be satisfied to be anesthetized by a student or an interne with little or no experience? No! We would demand a skilled operator, a skilled anesthetist and a good hospital. Then our patients should have the same.

To some the above statements may seem somewhat overdrawn, but to those who have followed hospital work closely, they know they are only too true. As I look back upon my first few weeks of anesthetic service, I do not hesitate to say that it was only good luck that saved the patients. I do not doubt but that more times than one I started the anesthetic with more dread and fear of the result than the patients. The interne on the anesthetic service was taken sick three weeks before the date of my graduation, and being the senior externe, I filled the place. The hospital being crowded, the other internes had their duties to perform; while I felt if I should lose a patient at that time, it would severely injure my future. It gave me a much more comfortable feeling when one of the internes could remain with me throughout the operation, for no one realized more than I how ill prepared I was to do justice to the patient. Such is about the usual start of most internes; with little or no instruction, they have to work out their own salvation.

Reports of deaths due to chloroform or ether while on the operating table have been collected from various hospitals. In some cases, time has lapsed and, being taken only from memory, possibly they are not as accurate and complete as might be desired. All have occurred within the past five years:

No. 1.—G. W. U. Hospital. Boy, white, age about 12 years, quite anemic, muscles flabby, only fair condition. Operation—curettment of necrosed bone of the foot. Chloroform was started slowly and was taken without anything unusual being noted, except the pupils were a little sluggish in reacting. After about ten minutes the patient was ready to be moved to the operating table, but was detained in the anesthetizing room fifteen minutes more until another patient could be removed from the operating room. He was then put on the operating table and the foot prepared. The operation was then started, when he moved his foot some, and the operator asked that he have more chloroform, which was carefully given him. The operation was about finished when without any warning the patient became very pallid, breathing very rapid and shallow, and pulse failing; then with one long sigh, breathing stopped, and the patient was dead. This all occurred in about sixty seconds; death being due to respiratory failure followed by heart failure. The tongue was pulled out, head lowered, artificial respiration and the usual stimulants to no avail.

No. 2.—Garfield Hospital. Girl, good condition, white, age 14. Operation—removal of plaster cast. While still in the primary stage, death occurred very suddenly without warning. Failed to respond to any stimulants. In this case, death was due to heart failure, as good color of the skin was kept up by artificial respiration for two hours, but the heart remained quiet.

No. 3.—Children's Hospital. Child, about 6 years of age. Operation, not stated, but must have been a minor one, as it was being done in the dispensary. Chloroform was given.

No. 4.—Freedman's Hospital. Boy, colored, good condition. Dispensary case. Operation—circumcision. Death occurred very suddenly without any warning during the primary stage. Usual stimulants—anesthetic, chloroform.

No. 5.—Freedman's Hospital. Woman, colored, young adult, good condition. Operation—laparotomy for fibroids. Anesthetic, chloroform. Death occurred suddenly during the primary stage, before the operation was started. Usual stimulants.

No. 6.—Casualty Hospital. Woman, white. Colle's fracture. Good condition. Chloroform was given to reduce the fracture when death occurred suddenly during the primary stage. Usual stimulants.

No. 7.—Emergency Hospital. Woman, white, young adult, good condition. Operation—curettage and laparotomy. Anesthetic—chloroform. The curettage had been completed, when, on putting her down in position for the laparotomy, there was some reaction and struggling, when death suddenly occurred from respiratory failure. Death occurring in this case in early part of anesthesia, before the major operation had been started.

No. 8.—Columbia Hospital. Woman, white, pale waxy color, very much excited and nervous over the operation, as she had a friend to die

a short time previously from an operation. Also a fortune teller had told her she would die during the operation. She had received slowly and carefully two drams of chloroform in five minutes and was still talking, when it was noticed she was getting a little blue, with some embarrassment of respiration. The chloroform was stopped and artificial respiration was maintained for about one hour and a half. The heart continued beating for about three-quarters of an hour, but the respiration failed to improve. This death was due to respiratory failure followed by heart failure.

No. 9.—Emergency Hospital. Boy, white, good condition. Operation for necrosed bone of the knee. Chloroform was started and while still in the primary stage before the operation was begun, there occurred sudden respiratory failure, followed by heart failure. He failed to respond to artificial respiration and stimulation, when heart massage was tried. Under this he improved and was returned to his room, but died after twenty hours.

No. 10.—G. W. U. Hospital. Woman, white, young adult, good condition. Diagnosis—pyo-salpinx. For the first ten minutes the patient received chloroform, then changed to ether, and after taking this about sixty seconds, death suddenly occurred. I think we can safely call this a chloroform death as it is very unusual for death to occur at this stage from ether.

No 11.—Casualty Hospital. Boy, white, age about 14, good condition. Operation—correction of old fracture. The anesthetic was started with ether, but after a short time it was found the patient was not taking it well, there being an excessive secretion of mucus, when it was decided to change to chloroform, and after taking this a few minutes death suddenly occurred. Here death occurred in the primary stage before the operation had been started. He failed to respond to the usual stimulation.

No. 12.—Providence Hospital. Man, colored, young adult, good condition. Operation—herniotomy. Patient had been under the anesthetic about one hour and a half to two hours and was apparently in good condition, when suddenly without warning death occurred. Tongue tractions, artificial respiration, stimulation, and a tracheotomy was performed—all to no avail. Everything was done except heart-massage.

No. 13.—Providence Hospital. Boy, colored, age 3 or 4 years. Operation for mastoiditis. Ether was administered and patient had been under the anesthetic sometime when death suddenly occurred. Anethetic ether.

No. 14.—Columbia Hospital. Woman, white, good condition. Had been under the anesthetic for about one hour and a half, the uterus, tubes and ovaries had been removed, and they were removing the appendix when death suddenly occurred. Anesthetic ether.

Looking over the above cases, we find the first seven received chloroform only, dying during primary anesthesia or very early in the operation. Number 9 also received chloroform but lived twenty hours. Number 10 received chloroform for the first ten minutes, then on changing to ether died in about sixty seconds. Number 11 first received ether and then chloroform. Number 12, 13 and 14 received ether only. None of these patients dying until they had been under the anesthetic sometime.

In three of the above cases students were the anesthetists; one a skilled anesthetist; one was started by a skilled anesthetist and turned over to an interne. Another, a skilled anesthetist *was* overseeing the anesthetist; while the remaining ones were administered by internes.

In one case the interne was considered responsible for the death by the coroner, and held for the grand jury. Also we notice all the deaths occurred in public hospitals. Private hospitals and sanitariums have long since learned it is cheaper to employ competent anesthetists than it is to receive public censure and fight damage suits.

Do the Mayos, Criel, Baldy and such men rely upon internes for their anesthetics? No! They employ trained men or women. Would they not use the former if it were as safe, for it is cheaper? The question might well be asked, "Where will we place the blame in the above cases? On the anesthetic, the anesthetist, or the patient?" What has been the result? The anesthetic has usually been blamed.

As to the relative safety of chloroform and ether, it is an accepted fact that ether is by far the safer, especially as regards the immediate death upon the operating table. Death rarely ever occurs in the primary stage from ether.

In Hewitt's book on "Anesthetics and their Administration," Walker states that the physiological power of chloroform and ether is seven or eight to one. Miss Alice Magaw, of Rochester, Minn., reports 14,380 cases of ether anesthesia without a death. I have failed to find any similar report of chloroform anesthesia. Hare, in Keene's Surgery, Vol. V., gives the chloroform mortality rate as one death in every 2,200—one death in every 16,000 cases from ether, which is about the usual rate given. From these remarks it will be seen that ether is by far the safest anesthetic—for the beginner at least.

Out of a total of 36,403 operations, 15 hospitals in Washington, with 14 deaths, 4,158 received chloroform with 9 deaths, or one death in every 462 cases, and 32,245 received ether with 3 deaths, or one death in every 10,748 cases. I did not include the two cases that had both chloroform and ether, but I think without doubt that chloroform caused death. It seems to me that a glance at the above facts ought to prove that ether is by far the safest anesthetic and especially so in untrained hands.

The dose required for each individual patient cannot be estimated so as to be of any value. You may measure out the number of ounces of ether or chloroform you use, or the amount of gas or vapor your apparatus generates, but this does not tell you how much is being taken up by the blood and tissue of the patient. Again this will depend upon the rate and depth of the respiration, the condition of the air passages, the rate at which the blood is being driven through the lungs, and the amount of chloroform or ether vapor contained in the inspired air. What value is it then to state that sixty drops of chloroform per minute should be the maximum amount given to the average patient? It is of absolutely no value. The maximum dose of chloroform or ether is the minimum amount required to produce surgical anesthesia, and maintain it as long as desired, and any more than this amount is an overdose. Then our patients very often get an overdose, and especially so with the beginner whose one thought is to get the patient under and on the operating table, then pay a great deal more attention to the operation than to the condition of his patient. Very often the anesthetist is so intent on watching the operation that his patient will become cyanotic when the operator will first notice it from the dark color of the blood. With ether this is not so dangerous, but on the contrary, where the inspired air should not contain more than four or five per cent. of chloroform vapor. The possible dose is large and unless the administration be suspended at the proper moment an overdose may be given causing sudden death. Concerning respiratory failure in moderately healthy patients under ether, however, such failure may arise, the circulation at the moment when breathing ceases is sufficiently satisfactory for remedial measures to be almost invariably successful. The heart is not likely to fail unless restorative measures be too long delayed. Hewitt states that in moderately healthy subjects primary circulatory failure under ether may, for all practical purposes, be regarded as an impossible event. This does not include bad subjects, with feeble, dilated, fatty or otherwise diseased hearts or patients that are saturated with ether. What is thought to be one of the most important physical phenomena of chloroform anesthesia is cardiac dilatation from the direct action of chloroform upon the heart muscle; and this dilatation arises independently of all asphyxia. Then if early in the administration before anesthesia is complete some asphyxia occurs, we have not only to deal with pulmonary engorgement, secondary distention of the right heart and the wide spread effects of non-oxygenated blood, but also the continuous absorption of the incarcerated anesthetic within the lungs, and the action of this upon the already embarrassed cardiac muscle.

It is easy to see that a slight asphyxial strain under choloroform may cause sudden death, even in the most vigorous subjects and that it may take place within a few seconds of respiratory embarrassment. It seems to me also, that the last stated condition is enough alone to condemn the too frequent changing from chloroform to ether or *vice versa*. Here we also have to consider the vapor density of the two: ether being 2.586 as compared to air, while the vapor density of chloroform as compared to air, is 4.199. Also we should remember that in changing from ether to chloroform, the latter should be given with more air and in less quantity. Chloroform acts quickly and should be given slowly and carefully, the pulse being

taken at the facial arteries. When struggling occurs chloroform should be withdrawn until the patient is quiet, as struggling will produce deep inhalation—hence the danger. Embarrassment in respiration during the administration of chloroform, should always be considered serious. I think then it is not hard to understand how we, and especially the beginner can more easily give an overdose of chloroform than ether.

What is the sign or signs of complete narcosis? I know of no one positive sign that can be used as a guide. But depend upon the following: Deep respiration, relaxed jaw, relaxed muscles, color, the pupils and the general condition of the patient. Under chloroform the pupil is generally contracted, while with ether it is usually dilated. There may or may not be rolling of the eyeballs. I wish to say that it is not only useless but harmful to touch the cornea or conjunctiva, for by so doing you only increase the danger of getting chloroform or ether in the patient's eyes. An open inhaler and the "drop method" should always be used with both chloroform and ether.

The ether cases I think do well to have morphine sulphate, grain 1-8 to 1-4, and atropine sulphate of 1-150 to 1-100 about half hour before the anesthetic is started. The chloroform cases should receive nothing previous to the operation. The inhaler, especially when ether is being given, should be raised several inches above the patient's face and as he gets accustomed to it and finds it does not cause any unpleasant effect, should be gradually brought down to the face. The anesthetic once started should be maintained without any intermission as near as possible, the rate and size of the drop being increased or decreased as the operation demands. Usually after the operation is started the chloroform or ether may be greatly decreased; the longer the operation lasts, the greater may be the reduction, and by the time the operation is completed the patient is getting very little of the anesthetic. So that when the anesthetic is stopped they react in a few minutes rather than in a few hours, where the old closed method is used or where they are saturated with the drug. I find that patients take ether with about the same ease as chloroform if the open method is used and the ether is given slowly and carefully.

The Patient.—Most of the patients referred to above were in good physical condition, and I firmly believe that if they had had ether in place of chloroform, a large proportion of them would be alive to-day. Patients are too frequently sent to the anesthetizing room with little or no preparation for the anesthetic. All cases, if possible, should enter the hospital the night previous to the operation. I always have more fear of the child that enters the hospital just a few minutes previous to the operation because it is impossible to know what the stomach contains. The over-kind mother or friend is always ready to give the little dear something to eat, and thus endanger its life. In practically all cases the anesthetic should be started upon the operating table, and not in the patient's room, or some other room. For as soon as patients start under, they begin preparing them so that by the time they have reached surgical anesthesia, they are ready for the surgeon—the time consumed being about eight to fifteen minutes; whereas if started in another room, "because you should not move your patient before the third stage," then it still requires the ten minutes for preparation; so that by starting your anesthetic on the operating table itself you save at least ten minutes for the patient, and if he is in a critical condition, ten minutes means a great deal.

I wish to refer to one case in regard to time.—Woman, age 77; operation, amputation of the breast. The anesthetic was started on the table; they started preparing her at once so that just as soon as surgical anesthesia was reached the operation was started and in just thirty minutes from the time that I gave her the first drop, the ether was stopped entirely. She started reacting on the table and by the time she reached her room she was talking. An open inhaler with plenty of air was used. She had morphine sulphate, grain 1-8, atropine sulphate 1-50, before the operation. It would have been impossible to finish in that time had the anesthetic been started otherwise; besides you would have encountered the danger of moving the patient before she was completely under.

F. W. Hewitt, on page 246 of his book, states speaking generally the conveyance of unconscious patients from one spot to another is open to considerable objection; particularly in the early stages of anetsthesia. In certain cases, a

change of posture may affect respiration; in others, it may deepen or even arrest the peripheral circulation.

John M. Patton, M. D., in his book, on page 64, states: "It is best to anesthetize the patient on the table upon which the operation is to be performed, if possible, and not to move him more than is necessary." Another objection to moving the patient is that it is impossible to watch the condition as closely as you should, so that he is more apt to come out some, causing vomiting and delay the operation, if nothing more serious. I have had one patient vomit while going under the anesthetic in the last 100 cases, where at first it occurred oftener, because I did not keep up my anesthetic properly.

One more remark concerning preparation, is that many times the patient is permitted to spend a sleepless night when a little chloral and bromide would induce sleep and the much needed rest.

The Anesthetist must be able to inspire confidence in the patient. He must be quick to notice the temperament and decide which mode will be the most effective in the particular case: the abrupt, crude, and very firm, or the reasonable, sensible and natural. I find the latter mode is far the best in the majority of cases; also that nothing seems to convince the patients of their ability to take the anesthetic so well as to examine the heart, lungs and pulse, and to joke with them about what a good heart they have, and what a pleasure it will be to take the chloroform or ether. I always try to explain to them just how the anesthetic is expected to affect them at each stage; in other words "talk them to sleep" rather than have the patient count or talk, for by so doing they are more apt to become noisy and boisterous. You should never tell a patient "to breathe deep," for in so doing a feeling of suffocation is sure to follow, and the patient is apt to struggle.

The anesthetists should never permit any one to hurry them as there is no short cut to anesthesia. How often have you heard the expression, "It is only a minor operation—give them a little chloroform." "Hurry things up!" "I want to get away," etc. If the anesthetist follows instructions, here he very often gets into trouble. Frequently we find that the patient we expect to cause us the most trouble takes the anesthetic best, and *vice versa.* To administer an anesthetic, is all one person can properly do.

The Result.—Over the entire country during the past few years the reform wave in anesthesia has been felt and probably more so in Washington than the average city. For the past few years Columbia and Georgetown University Hospitals have had the paid anesthetist system, each employing two men. About one year ago Garfield Hospital and George Washington University Hospital adopted the same system, each employing three men. Last July Freedman's Hospital employed a physician at a salary of $1,200 per year with room and board, who devotes his entire time to the giving of anesthetics. About the first of the present year, Providence Hospital adopted the paid system, employing two men. Also about this time, the Episcopal Eye, Ear and Throat Hospital adopted the same system, employing one man. For some little time the Homœpathic Hospital has employed a physician who administers the anesthetics to the ward patients and to the private patients when requested to do so; otherwise the surgeon brings in his own anesthetist. We find then that Children's, Emergency, Sibley, Casualty, Washington Asylum and Tuberculosis Hospitals are still under the interne system. I think what is generally meant by the "Paid System" is that the anesthetist gives all the anesthetics, in the private cases receiving his pay from the patient, while with ward cases, he either gives himself or has the interne give it under his instruction; for these cases he receives no compensation.

In conclusion: 1. The paid system is not merely a passing fad, but a long delayed need. 2. The combination of ether by the open method and the trained anesthetist ought to reduce the deaths on the table from the anesthetic to a minimum; and thus materially aid the surgeon, by not only relieving him of the responsibility of the anesthetic, but also leaving him more live patients at the end of the operation and in better condition. 3. Accidents will occur from the use of chloroform and ether in the most skilled hands, but public opinion is so much in favor of ether at the present time, that if an accident in its use occurs the anesthetist and surgeon will not be blamed. 4. The table of anesthetics from

the various hospitals, although crude in a way, yet as fair for ether as chloroform, shows that the deaths from chloroform in proportion to the deaths from ether have been greatly above the average mortality rate. 5. Internes do not resent the removing of one of their opportunities, but seem rather glad to rid themselves of an unpleasant task. 6. In several of the chloroform cases death was due to respiratory failure, which would seem to show that death occurs from respiratory failure under chloroform more frequently than is generally understood.

629 *G Street, S. W.*

EARLY CELIOTOMY FOR OVARIAN TUMORS.*

By J. E. RAWLS, A. B, M. D., Suffolk, Va.
Surgeon to Lakeview Hospital, etc.

The past century has wrought miraculous progress in medical science. Wonderful, as these advances have been, the greatest achievements have taken place in the department of surgery, which Chamisso terms "the seeing portion of the healing art." To-day surgery is made as nearly, perhaps, as it ever can be, an exact science, to which every other branch of science has been made contributory. Hence this progress, in a way, enables me to advocate early radical treatment for ovarian tumors.

An advocate of early celiotomies and exploratory abdominal incisions in the days of Ephriam McDowell, the father of ovariotomies, would, no doubt, have been classed as a surgical criminal. But to-day what a contrast!

With the operating table robbed of the galling manacles of pain, with modern means of controlling hemorrhage and preventing infection, and in the hands of a skilled surgeon a simple celiotomy offers no more mortality than an oceanic voyage. It is true there are certain dangers and risks taken, but no more than are entailed in a well-governed steamboat line. Since this is true we no longer delay in opening the abdominal cavity when indicated in abdominal and pelvic diseases. In no condition is early celiotomy more strongly indicated than in ovarian diseases, and especially in ovarian tumors. No organs in the abdominal and pelvic cavities are subject to more pathological changes than the ovaries. These are especially victims of tumors. These tumors are both benign and malignant, and it is this latter class of tumors, which constitute about 20 to 30 per cent. of all ovarian tumors, that greatly gave birth to the title of this paper.

The importance of early operation in this class of cases was truly emphasized in a surgical experience of mine some months ago, when I operated on a patient who had been for some time a doomed victim of two large pelvic tumors situated in the regions of each ovary. These tumors—the right and the left—weighed three and a half and one and a half pounds, respectively, which proved, microscopically, to be small round cell sarcomata of the ovaries. This case was reported in detail before the last meeting of the Seaboard Medical Society.

The various ovarian tumors, save simple follicular cysts, are found in any period of life, and a few have been observed in the foetus. Some of the tumors are more characteristic of certain ages. Fibroma, myoma and sarcoma are met with more frequently in young women and children, while carcinoma is more frequently observed between the ages of 30 and 60 years than in any other time of life. Simple follicular cysts only occur between puberty and menopause. The greater number of glandular cysts are observed between 20 and 50 years of age, while dermoid cysts are more common before puberty. The papillary cysts are not often met early in life, but the greatest number of cases are met between 30 and 50 years of age and constitute about 11 per cent. of all large ovarian cysts.

Ovarian tumors, both benign and malignant, have, to a more or less extent, symptoms in common. Pressure symptoms are found, such as pelvic and reflex pains; irritable bladder and other urinary disorders; constipation and other gastro-intestinal disturbances; cardiac and respiratory disorders, such as irregular heart action and dyspnea; ascites and edema of the lower extremities, vulva, vagina and abdominal wall. Menstrual disturbances are met at times, but are not usually marked. Sterility is the rule, especially where both ovaries are involved. The general health, ordinarily, is not affected as early and rapidly by benign as malignant growths. The progress of the general

*Read before the Tri-State Medical Society, at Richmond, Va., February, 1910.

symptoms occasioned by benign conditions is slow, while with malignant more marked and rapid in its course. Cachexia and the gradual progressive loss of strength and weight are almost characteristic of malignancy. Physical signs are likewise in common to a great extent in benign and malignant tumors of the ovaries. By examination made by vagino-abdominal and recto-abdominal palpation we are able to elicit the position, shape, size, consistency, mobility and relations of the tumor.

So far the history, clinical symptoms and physical examination of the patient are of but little diagnostic importance as giving absolute proof of distinction between the different varieties of ovarian tumors. It is true that rapid growth, ascites, chronic peritonitis, œdema of the lower extremities, cachexia and gradual loss of strength and weight are significant symptoms of malignancy, but are late manifestations, and the proper treatment should not be delayed or postponed by using non-efficient remedial agents until these death dealing symptoms develop.

To me, it seems the only wise and efficient treatment of ovarian tumors is removal by abdominal section. The importance of early operation cannot be too urgently advocated. We find many more or less serious complications taking place in the benign tumor, if proper treatment is delayed, such as suppurative inflammatory conditions, hemorrhages, twisting of the pedicle, rupture, adhesions to adjacent viscera, and especially the great tendency to undergo malignant degeneration. There is less danger to the patient to operate on a small pelvic tumor than a large abdominal growth, which has undermined the victim's general health.

When we consider the malignant tumor of the ovaries we find early surgical procedure doubly more imperative. Here we have a probable proportion of one malignant to three of benign of all ovarian tumors and our only hope in this class of cases is early diagnosis—early removal by abdominal route.

Crile has truly said that it was unfortunate that cachexia and glandular enlargement should be classed symptoms of cancer, for when diagnosis is delayed until these two symptoms are developed, hope for cure by surgical means is in vain. Statistics show that over half of malignant ovarian conditions are bilateral. In quite a number of these cases microscopic foci are found in the apparently healthy ovary. This would point to the advisability of removing both ovaries in every case. In a great majority of cases this is true. Especially should both be removed in carcinomata and if left in sarcomata the risk should be thoroughly explained and the patient kept under constant observation.

It is stated that cancer, if taken in time, is either preventable or curable in at least 95 per cent. of the cases. If this be so, may we be up and earnestly about our professional business. The great mortality in the past in malignant conditions of the ovaries has been, no doubt, in a great part a medical and not a surgical mortality. May we discard for all time the terms, "female troubles," "change of life" and treatment of douches, and tampon, and grease, and galvanism in this class of cases in a fruitless effort to give relief to these poor victims, and in their stead make a thorough and positive examination of every patient that consults us, and if by physical examination an ovarian tumor is detected, advise and urge an immediate removal before the golden days of hope by surgical relief have ebbed away into the past to be no more.

Proceedings of Societies, Etc.

AMERICAN PROCTOLOGIC SOCIETY.

(Concluded from last issue.)

Incontinence Following Rectal Operations.

By GEORGE B. EVANS, M. D., Dayton, Ohio.

We understand the external sphincter to be a flat plane of muscular fibers, elliptical in shape, and intimately adherent to the integument, and joining with the perinei, levator ani and accelerator urinæ. It is voluntary muscle, and supplied by a branch of the fourth sacral nerve.

The internal sphincter is but a muscular ring, half an inch in breadth, in thickness two lines, and but an aggregation of the involuntary circular fibers of the intestine. Evidently the only true sphincter ani is the external—the internal sphincter ani is not subject to volition—and its sphincteric influence must by largely due

to the support afforded it by the practically amalgamated muscles which form the floor of the pelvis and whose main function is the support of the hollow viscera of the pelvic cavity. Would it, therefore, be illogical, to believe that the internal sphincter is not, neither can it be made by any surgical procedure an efficient voluntary constrictor? Certainly, it is true that efficient and satisfactory sphincteric function is dependent on normal support of the bowel by a normal muscular floor with a normal interdependent power of sphincter muscles; hence any trauma which interferes with muscular function disables proportionately to the extent of the injury.

That incontinence does follow division of the external sphincter, that incontinence does follow division of the internal sphincter, is not denied. and when their division becomes a necessity the best way, if there is one, of making the incision should be chosen. Can we hope that ere long there will be a method of cure for fistula-in-ano that will exclude even the possibility of incontinence?

Considering the anatomical conformation of the perineum, the mutual dependence of perfect function, those engaged in rectal surgery are admonished not to forget that indifferent and multiple injuries (even surgical injuries) should not be indulged in, for fear of a result that would prove more painful and unendurable than the condition which indicated operative interference.

We believe that incontinence can be obviated by relieving the tension of the fibers of the levator ani muscle at their attachment to the external sphincter, or both the external and the internal sphincter by nicking the fibers of said muscles on either side of the fistulous tract and thus permitting an incision of the muscle at right angles to the same.

Ulceration of the Rectum in Pregnant Women and the Part it Plays as a Factor in Abortions; With a Report of Cases.

By LEON STRAUS, M. D., St. Louis, Mo.

Sixteen years devoted to diseases of the rectum exclusively has afforded the author the opportunity to see and classify a large number of cases of irritable ulcer of the rectum in pregnancy, to say nothing of a much larger number not associated with this condition. He has kept a very careful record of these most interesting cases and has classified them with reference to certain conclusions—namely, that it is a factor not infrequently overlooked. Then, too, many general practitioners make the contention that an operation is uncalled for and unwarranted—that is to say, an operation will certainly produce the very result which it is intended to avoid.

He dissented absolutely from this contention and for that reason reported the results of his work along this line and his final conclusions. He has operated twenty-four times for the result of irritable ulcer of the rectum in pregnant women. Not all of these operations were made to prevent abortion. In fact, only fourteen had had one or more abortions. That leaves ten for which the operation was made to relieve the distressing pain from which these patients suffer. A number of these cases are unique and teach a lesson apart from the average case. The history, symptoms and results of several such cases were reported and the following conclusions were drawn:

First.—That irritable ulcer of the rectum is not an infrequent factor in abortion and miscarriage.

Second.—That the local lesion is not recognized by the general practitioner as a factor in abortion and miscarriage.

Third.—That you will meet strong opposition to operative interference by the general practitioner.

Fourth.—That you can and should operate at any period of the pregnancy if indicated.

Fifth.—That the danger, and only danger, is in leaving the fissure without operating.

Sixth.—That you may and will often have to assume the entire responsibility for the outcome of the operative procedure.

Seventh.—That we proctologists should teach on the byways and highways of surgery the invariable indication for surgical interference in these unfortunate cases.

A Case of Localized Dermatitis Following the Use of Quinine and Urea as a Local Anesthetic in a Case of Fissure and Hemorrhoids.

By ARTHUR HEBB, M. D., Baltimore, Md.

Three days after the use of a 1 per cent. aqueous solution of quinine and urea as a local

anesthetic in a case of fissure and hemorrhoids, erythema over the ischiorectal region developed, followed by epidermolysis, then a profuse serous discharge which continued for four or five weeks. The wound showing little tendency to heal during this time.

A Brief Review of the History of the American Proctologic Society From Its Organization in 1899 to Date.

By LEWIS H. ADLER, JR., M. D., Philadelphia, Pa.

The author believed the presentation of this paper would help to impress the profession with what had been accomplished, not alone for the individual profit and pleasure of the members of the organization, but likewise for the benefit of the profession as well as for the advancement of the science of medicine.

Attention was called to the fact that as the surgeon had rescued surgery from the "Society of Barbers and Bathers," and the obstetrician the practice of midwifery from the ignorant and often grossly careless midwife, so the proctologist, largely by means of this organization, has advanced diseases of the rectum and sigmoid from the domain of quackery to a recognized specialty, and has removed from the hands of the charlatan to a great extent a fertile field for playing upon the credulity and ignorance of the populace.

The first effort to organize a National Proctologic Association was made in June, 1895, when the American Medical Association met in Baltimore. Dr. Samuel T. Earle at that time called together the following proctologists to meet at his house: Drs. James P. Tuttle, Samuel G. Gant, T. C. Martin, Joseph M. Mathews and Leon Straus. The subject was talked over informally, but no definite action was taken.

Including the present meeting at St. Louis, the society will have convened twelve times. The respective meeting places, starting with the first session in 1899 at Columbus, Ohio, were Washington, D. C.; St. Paul,, Minn.; Saratoga Springs, N. Y.; New Orleans, La.; Atlantic City, N. J.; Pittsburg, Pa.; Boston, Mass.; Atlantic City, N. J.; Chicago, Ill.; Atlantic City, N. J., and St. Louis, Mo.

In the order named the following have been presidents: Drs. Joseph M. Mathews, James P. Tuttle, Thomas Chas. Martin, Samuel T. Earle, William M. Beach, J. Rawson Pennington, Lewis H. Adler, Jr., Samuel G. Gant, A. Bennett Cooke, George B. Evans, Dwight H. Murray and George J. Cook.

Special attention was called to a paper by Dr. William Bodenhamer, in 1903, upon "Atony of the Rectum," read by title, the author being ninety-four years of age.

The number of papers presented at the different meetings have varied from twelve to twenty-eight. The total number of articles read at all meetings, exclusive of the present session, have been one hundred and eighty-seven. The fist year, a small volume of transactions was issued. This, however, was discontinued until 1908, when it was decided to issue an annual volume for three successive years. Two have already been issued and the remaining volume will be published, following the present meeting. It seems to the writer that the publication of the transactions annually should be made a permanent feature. In this manner they become a public and permanent record of the work accomplished by the society and do more to add dignity to and further the aims of the organization than anything else. Knowing that the transactions will be published, the members will be stimulated to present papers at each meeting, and exert their best efforts in their preparation. Furthermore, the discussion of such papers, will be more energetically entered into and more carefully considered because of the knowledge that such discussion will be permanently recorded.

The membership began with thirteen, and at the present time numbers thirty-seven active members. Five fellows have resigned for various reasons and one has been transferred from the active to the honorary list. Nine honorary fellows have been elected as follows: Sir Charles B. Ball, Dublin, Ireland; Prof. Dr. Sonnenberg, Berlin, Germany; Dr. A. Tierlinck, Gand, Belgium; Mr. F. Swinford Edwards, London, England; Mr. W. W. Wallis, London, England; Mr. P. Lockhart Mummery, London, England; Mr. W. Ernest Miles, London, England; Dr. Edmund Andrews, Chicago, Ill.; Dr. Wm. Bodenhamer, New Rochelle, N. Y., the two latter being now deceased.

The average attendance at the annual meetings has been over 95 per cent. of the member-

ship, a most excellent indication of the interest shown in the work of the organization.

In the body of the article reference was made to a number of important papers presented from the inception of the organization, to date, and from a cursory review of these varied papers selected for special mention, it will seem that the subject of Proctology in all its phases has been amply covered at one time or another; many new instruments have been devised and exhibited; many original methods of operation have been suggested; and advanced methods of treatment introduced.

The discussion of the papers presented have been entered into freely both by members and visitors. Criticisms, favorable or otherwise, have been made with impartiality, but never in the entire history of the organization has one word been uttered to impair the harmony of a fellowship which has endeared itself to its members and strengthened as the years have gone by. It is perhaps unusual in so large a body of men, working in the same field and with the same object in view, not to find occasionally jealousy or personal antagonism in some form or manner. The fact that this has happened in the history of the organization, is due perhaps, somewhat to the care exercised in the selection and election of its members, and the intimacy and close friendship existing between them.

Those interested in the society's welfare cannot be but well satisfied with the result thus far obtained. But what of the future? Can the same interest be maintained, and, if so, can it be along similar lines, or is it possible to awaken further interest by the introduction of some new procedures and ideas? Possibly the discussion of some one subject as the chief feature of the program, to be opened by one or more men, previously assigned different parts for consideration, to be followed by a general discussion (a suggestion which was made at the first session, but so far as the writer has been able to ascertain never carried out), might prove a means of increasing interest in the work of the organization.

Remarks Upon Cecostomy and Appendicostomy.

BY SAMUEL G. GANT, M. D., New York, N. Y.

The author called attention to the remarkable usefulness of appendicostomy and cecostomy in the direct treatment of bowel diseases and made the point that the latter was preferable in this class of cases and would sooner or later supercede appendicostomy. He also exhibited a new appendiceal irrigator which could be inserted during operation and which permitted irrigation to be started immediately in aggravated cases of diarrhea and intestinal autointoxication.

Next he showed a new entero-colonic irrigator by means of which the large and small intestines could be irrigated separately or at the same time.

He claimed that this instrument is indicated in the treatment of all forms of enteritis, entero-colitis and the different types of ulcerative diseases of the colon, and also in the treatment of typhoid fever, intussusception, peritonitis, and parasitic affections of the intestine.

This irrigator, he maintained, was useful as well for studying the contents of the bowel, intestinal feeding, the direct employment of cathartics, enteroclysis and for many other useful and practical purposes.

Report of a Case of Post-Operative Delirium.

By SAMUEL T. EARLE, M. D., Baltimore, Md.

The author stated that while post-operative delirium was quite common before the days of antiseptic surgery, it was due then in the majority of cases to septic infection. The condition is rare now, except when due to shock, and then only as a result of a grave operation.

The minor character of the operation preceding the attack in the present case makes it more interesting, which is doubtless accounted for by the age of the patient.

Case.—Dr. A. T., age 78, had suffered with hemorrhoids since before the Civil War (1861), but had persistently determined not to be operated upon. Early in May, 1910, they became thrombosed and inflamed, at which time he consented to an operation.

The usual hypodermic of 1-6 grain of morphine, atropine 1-120, and strychnine sulphate 1-30, was administered prior to the anesthetic. Fearing the effect of ether or chloroform on account of his age, it was decided to administer a mixture of nitrous oxide gas and oxygen. This mixture did not keep him thoroughly anesthetized, consequently the operation was

not completed as quickly as usual and as a result there was more blood lost, which did not exceed two or three ounces.

The operation was completed, he regained consciousness in a few minutes, but almost immediately became very excited and delirious. Thinking this might be due to pain, one-fourth of a grain of morphine was given at the end of two hours from the time he received the first hypodermic; a third dose was given at 8 P. M., three hours following the second dose. The patient continued very delirious during the night and for three days following. The second and third nights we were able to quiet him for a few hours by hyoscine hydrobromide grain 1-50, and morphine 1-6, administered hypodermically. For the remainder of the first week, the hyoscine hydrobromide grain 1-50 was sufficient to give him a quiet night, but the delirium continued for one week from the time of the operation, but not nearly so active as during the first few days and with some lucid intervals. His temperature did not exceed 99 1-2, the first three days, but on the fourth day it reached 100.5 and again on the seventh day, for a short time without any apparent cause; otherwise the patient made an excellent recovery, and was able to be about the house in about ten days after the operation.

Appendicostomy—A Consideration of the Preservation of the Blood-Supply of the Appendix in the Technic of the Operation.

By Frank C. YEOMANS, A. B., M. D., New York, N. Y.

Case.—Mrs. X. was operated upon March 21, 1908, for ulcerative colitis. While performing the appendicostomy, one of the cecal vessels going to the appendix was punctured and tied. Three days later the appendix sloughed and a fecal fistula formed. The colon healed with irrigations, the fistula closed and the patient is well to-day as regards her bowel. This experience and similar experiences of several colleagues led the writer to a study of the circulation of the appendix from a surgical standpoint.

Embryology shows the appendix to be the vestige of the original head of the cecum which failed to participate equally in development with the rest of that organ; and at an early period of embryonic life, not possessing a mesentery, derived its sole blood supply from the cecal vessels. The latter statement is true of the rudimentary and the fetal forms of appendix, even in adults. For all practical purposes the sole blood supply of the vermiform appendix is from the posterior ileo-cecal artery through (a) its cecal branch, which sends one or more twigs to the appendix, and (b) its appendicular branch, which runs in the free border of the meso-appendix, sending several—usually three to five branches to the appendix. The cecal branch is constant and courses along the appendix on its mesenteric side, anastamosing with branches of the appendicular. Dissections of a number of injected subjects by the writer demonstrated this arrangement of vessels to be practically invariable. As these vessels are by nature terminal in character, there at once became evident the importance of preserving both branches at operation, if the vitality of the appendix is to be maintained entire.

No trouble is experienced in avoiding the cecal vessels when uniting the cecum adjacent to the base of the appendix to the parietal peritoneum, as they indicate their position by visible pulsation. With the mesentric branches it is different. Most appendices are valciform and one must free the mesentery in order to straighten the lumen sufficiently. There are two ways of accomplishing this: One is to ligate and cut the mesentery at a point far enough from the base of the appendix so that the blood-vessels can be preserved to that part of the appendix traversing the abdominal wall. The tip beyond the skin dies, and infection is apt to extend between the appendix and abdominal wound; hence this procedure is objectionable.

The other method, here advocated and in practice found successful, preserves the arteries intact and, consequently, the vitality of the entire appendix. It is accomplished by separating the two layers of the mesentery at its juncture with the posterior mural peritoneum, beginning at its free border, and carefully displacing the cellular tissue with its contained appendicular artery and branches, as far as necessary toward the appendix. The two layers of peritoneum are then divided transversely to the base of the appendix, turned in and sewed, to obliterate the raw space on the posterior abdominal wall. Experience teaches that it is unnecessary to test the potency of the appendix until the wound has healed, *i. e.*, in four or five days.

Further precautions are not to obliterate any arteries by forceps, ligatures, sutures, torsion or tension in fixing the appendix in a position where it does not rest naturally, or by closing the wound too snugly about it.

By following this technic the operation is without mortality, and post operative leakage of feces and hernia—the two troublesome sequellae of appendicostomy—are avoided. Appendicostomy should continue to grow in favor over cecostomy in all cases where prolonged irrigation of the colon is indicated.

A Case of Fibrosis of the Rectum.

By J. A. MacMILLAN, M. D., Detroit, Mich.

The case presented an area of fibrous tissue an inch and one-half in width which encircled the rectum.

The lesion had recurred, was non-inflammatory, and caused no tendency to stricture.

Diagnosis.—Possibly the result of syphilis.

Book Notices.

Genesis—A Manual for Instruction of Children in in Matters Sexual. By B. S. TALMEY, M. D., former Pathologist, Mothers' and Babies' Hospital, and Gynecologist, Yorkville Hospital, New York. 194 pages, with 19 cuts, 47 drawings in text. 12mo. 1910. Practitioners' Publishing Co., New York. Cloth, $1.50 net.

This "Manual for Instruction in Matters Sexual for the use of Parents, Teachers, Physicians and Ministers," if properly read, and the principles it teaches implanted in prudent minds, is calculated to be of great service to those who teach the young of either sex. The objection to such a book is that prurience alone on the part of the boy or girl may be the sole motive in reading it; and we all know that "a *little* knowledge is a dangerous thing." Not only is error sometimes perpetuated, but vices suggested that had not been thought of. Our advice is to be careful in selecting the young person into whose hand to place the book, and also be cautious that the teacher add proper comments so as not to lead to misunderstanding of results of vice. Generally speaking, the book gives reliable information.

Nephrocoloptosis. By H. W. LONGYEAR, M. D., Professor Gynecology and Abdominal Surgery, Detroit Post-Graduate Medical School. 8vo. 251 pages with 88 special illustrations and colored frontispiece. 1910. C. V. Mosby Co., St. Louis. Cloth, $3 net.

This book represents a distinct advance with reference to so-called "floating kidney," and if the facts brought out by the author are verified by the observation and experience of others it will prove a great blessing to patient, surgeon, neurologist, etc. The author announces the discovery of what he calls "the nephrocolic ligament," and its causative action in nephrotosis, "with the technic of the operation of nephrocolopexy, in which the nephrocolic ligament is utilized to immobilize both kidney and bowel." Many cases of so-called indigestion, neurasthenia, supposed appendicitis, etc., have been proven by the author to be cases in which the "nephrocolic ligament" of the right side chiefly was responsible for all the ailments above referred to, proper surgical attention to which relieved all the symptoms. Our want of space prevents a fuller notice, but the book is alike valuable to the physician, neurologist, gynecologist, etc., for diagnosis, and to the surgeon for the technic of operation for the cure of the condition. Illustrations are abundant.

Dislocations and Joint-Fractures. By FREDERIC J. COTTON, A. M., M. D., First Assistant Surgeon, Boston City Hospital; Assistant Professor Clinical Surgery, Tuft's College Medical School, Boston. 8vo. 654 pages with 1,201 illustrations, 830 from drawings by author. 1910. Philadelphia and London, W. B. Saunders Co. Cloth, $6 net; half morocco, $7.50 net.

The purchaser should bear in mind that this book deals but slightly with fractures of the shafts of bones but almost entirely with those fractures connected with dislocations and injuries about joints. The work represents the experience and observations of the author, who has taken great pains to study the cases that have come under his observation—both by X-rays, examinations of patients and museum specimens. While it is a book of much value to any one paying special attention to the subject of dislocations and involved fractures about joints, and also to the practitioner having a special case in hand, it can hardly be spoken of as a student's text-book, it specially emphasizes the fact that each such case must be studied separately, and special means adopted

to meet the demands. The profusion of illustrations represent mostly cases seen by the author, and their study by the doctor in general practice will furnish many valuable suggestions—both in diagnosis and as to treatments. The volume should be in the medical libraries of the country because reference to its pages will be frequently exceedingly serviceable. A good index is appended.

Textbook on Therapeutic Action of Light, Including the Rho-Rays, Solar and Violet Rays, Electric Arc Light, the Light Cabinet. By CORYDON EUGENE ROGERS, M. D., formerly Demonstrator of Anatomy, University of New York City, **With Original Illustrations.** Published by Author. 8vo. 323 pages. Cloth, $3.50.

The author is scarcely sufficiently clear in his definition of the newly coined word, "Rho-rays," to make it easy of understanding in a few lines book notice. The idea was obtained by him some ten or twelve years ago while on a trip to the tropics, where he found the natives treating themselves by direct solar rays, for such diseases as tuberculosis and pneumonia. His studies and experiments led him to devise an electric lamp of strong light penetrating force, with which he also treats lupus epithelioma, and the like. The book has to be read through and through in order to get a proper conception of the work proposed. It has a good Index. The author's address appears to be at present "Chicago, Ill.," but the book was received by express from Corydon E. Rogers, New York.

Editorial.

Medical Society of Virginia.

The program of the forty-first annual session of this Society, to be held at Norfolk, Va., is about to be issued. It will be found a very inviting one, especially as to the papers, the authors and prospective discussions. Arrangements have been made for stenographic reports of all *ex tempore* discussions by the same party who has so cleverly done the work for the past several sessions.

To one intimately connected with the Society as an official from its organization, forty years ago, and who has attended every session, special interest in its future cannot be avoided. There are several business matters of vital interest to come before the approaching session.

One of these relates to a proposed increase of the annual dues per member from $2 to $3, or more. To adopt such a measure will be risky to the true interests of the society. Although an indulgence of three years is allowed a member before he is "dropped from membership" as a delinquent, the Treasurer invariably, at every session, has a long list of "delinquents" to report—simply because the parties cannot well meet even the moderate Society dues of two dollars a year. Generally speaking, this applies to the younger members, before they have become established in practice. The dropping from membership of these "delinquents," added to the number of deaths, resignations and removals, makes it a difficult matter to report a net gain by new members at each session. If so many find it difficult or impossible to pay annual dues of only two dollars, how much more difficult will it be for the Treasurer to collect $3 or more a year? Of course, with perhaps a large number of the members, an increase to $3 a year would be immaterial, but the total collected would be less than it now is at $2.

Business affairs of the Society are first referred to the body of Councilors for consideration and report. Except the Councilors from the State-at-large, ten are chosen from the ten congressional districts of the State. Such an arrangement makes it practically impossible for the doctors of certain districts to attend meetings held in other parts of the same district without undue loss of time, owing to the fact that the congressional districts have been so manifestly gerrymandered by politicians. Hence the committee appointed at the last session of the Society, after much deliberation, will report in favor of fifteen districts, better located geographically, and with some accessible center by railroad or other public conveyance, in each of the fifteen districts.

Another important matter that may be considered refers to a permanent home for the Society for its annual sessions. No doubt such a suggestion has many points in its favor for it would afford a suitable place for the preservation of the records of the Society, a library, reading rooms and such things. A decision of this question depends alone upon the cost *per annum*. The Society unquestionably is be-

coming too large to meet in the smaller towns of the State. If such localization is determined on, Richmond City, of course, because of its location and size, would be the place—with its two medical colleges, their laboratories, clinical advantages, etc. Besides, the State Health Board has its offices, laboratories and distributing facilities there.

Still another important matter will be the report of the committee to secure the repeal of State license taxes on medical practitioners of the State. If the Virginia profession is thoroughly in earnest about this matter, every doctor should put himself to the trouble to explain the situation to his prospective legislator, and the Society itself should lend its financial aid.

Typhoid Fever and Drinking Water.

If another instance in proof of the causative relation of typhoid fever and drinking water were wanting, that instance is furnished by the most marked decrease of the disease in the city of Richmond since the installation of the "settling basin" and the purification of the drinking water of this city. We have not the exact figures before us as we write, but it is safe to say that during the year about ended, there has been a decrease of fully 50 per cent. of cases arising in the city, and nearly all of the other 50 per cent. of cases have been traceable to causes not originating among those who limit their water drinking supply to that from the city reservoirs. Many cases of the disease this year have originated in patients before coming to the city, such as those returning to their homes after outings in the country, or those freshly arrived from towns and cities where proper protection of the drinking water supply does not exist.

Richmond feels already that the heavy expenditure of money in improving its drinking water supply has been well repaid in the saving of its citizens from disease and death. Other towns and cities of the State, where the drinking water supply has no safeguard thrown around it should learn the lesson of economy in likewise preventing so serious an infectious trouble.

Investigation of Anterior Poliomyelitis.

A committee of the Medical Association of the District of Columbia has been appointed for the purpose of inquiring into the causes and prevention of this most serious infection. The committee especially requests that all parties having had cases of this disease should promptly and fully communicate with it, through their secretary, Dr. Prentiss Willson, the Toronto, Washington, D. C., especially with reference to its causes and prevention. Every veritable case adds so much to the fund of information from which the committee may draw conclusions. Where pathological specimens are procurable arrangements have been made by this committee for their thorough examination and report.

The Association of Military Surgeons of the United States

Will meet in their nineteenth annual session at the Jefferson Hotel, Richmond, Va., October 31st to November 4th, inclusive. A large attendance is expected, and the local committee of arrangements, composed of Majors Truman A. Parker and Lawrence T. Price and Captains F. K. T. Warrick, J. Fulmer Bright and Giles B. Cook are planning many social affairs for the entertainment of their guests. The program promises some interesting papers by distinguished men. Col. Joseph K. Weaver, of Norristown, Pa., is president, and Major Charles Lynch, of Washington, secretary of the association.

Virginia State Epileptic Colony.

Work is progressing so rapidly on the Epileptic Colony that it is now expected the institution will be ready to receive from eighty to one hundred patients by the first of March, 1911. The location near Lynchburg, is unsurpassed for the purpose, and Dr. A. S. Priddy, whose previous hospital work has well fitted him for the position, is superintendent. The largest of the buildings to be opened at that time is to be known as the Drewry-Gilliam Building, named in honor of Dr. William F. Drewry and Mr. Robert Gilliam, of Petersburg, who have, from the beginning, been two of the most interested and enthusiastic workers for the establishment of the colony.

Typhoid Fever in Harrisonburg (Va.) and Vicinity.

After careful investigation, the State Board of Health, working in conjunction with the local board, has ascertained that the spread of typhoid in West Rockingham, and especially in Harrisonburg, was caused by an infected milk supply. Measures were at once taken to stop the sale of this milk and abatement of the spread of the disease was promptly noticeable, no new cases having occurred for some time.

The University College of Medicine, Richmond, Va.,

Began its eighteenth session on the 14th of September, with the largest enrollment of students in the history of the college, despite the struggle it had after its fire of January last. Most of the old students not in last session's graduating class have returned, and with them a large number of new matriculates. The opening exercises were the occasion of much rejoicing, and were largely attended by friends of the institution.

The Elizabeth Buxton Hospital,

Newport News, Va., an advertisment of which commences in this issue of *The Semi-Monthly,* was established in 1906. The medical staff has recently been enlarged by the addition of three doctors, and twelve rooms and nurses' quarters have been added to meet the demands for increased accommodation. It is ideally situated—fronting on Hampton Roads.

Medical College of Virginia, Richmond,

Entered upon the session of 1910-1911, September 13th, with a registration up to that of last year. All classes in the medical department are in full swing, but the pharmaceutical and dental departments will not open until the 4th of October.

The Richmond Academy of Medicine and Surgery

Resumed its semi-monthly meetings on the evening of September 13th, at which time interesting papers were read by Drs. E. H. Terrell, J. Allison Hodges and McGuire Newton.

The Southside Virginia Medical Association

Will hold its next quarterly meeting at Franklin, Va., October 4th, instead of September 27th, as previously announced, on account of other important meetings for the date first set.

The Lynchburg Medical Society,

After a vacation of two months, held the first of its fall meetings on September 5th, the President, Dr. George J. Tompkins, in the chair. Papers were read by Drs. John W. Carroll and E. W. Peery.

Drs. Edward aod Stuart McGuire,

Both of Richmond, Va., have returned from their trips abroad, and report a delightful time.

Obituary Record.

Dr. Stuart Arthur Ashton,

Of Colonial Beach, Va., died at Garfield Hospital, Washington, D. C., September 9th, after a short illness due to a typical case of poliomyelitis.

Dr. Ashton, who had only celebrated his twenty-sixth birthday on the 25th of last month, was born in King George County, Virginia. Upon completing his academic education at William and Mary College, he began the study of medicine at the University College of Medicine, Richmond, from which he graduated in 1907. After serving as interne at St. Luke's Hospital, Richmond, for a year, he took up the practice of his profession in Westmoreland County and though so young a man, had become exceedingly popular and beloved as a physician, and held many offices of trust in his section. He was a member of the Medical Society of Virginia as well as of local societies. The interment was made in the family burying ground in King George County. Several brothers and sisters survive him.

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Original Communications.

NOTES ON ACUTE CEREBRAL COMPRESSION, WITH PRESENTATION OF CASES.*

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No class of cases can present more weighty questions, requiring prompt and accurate decision, than those of suspected intra-cranial lesion.

Head injuries, with all their accompanying array of confusing or obscure symptoms, occur with considerable frequency in the practice of every physician. The course of the disease is apt to be of a nature which prompts palliative or a "leave-alone" treatment and the results are always problematic. Even with the most painstaking study and observation of a case, the use of all the means of precision and a line of treatment based on the best judgment, the intrinsic seriousness of the lesion thwarts our efforts and adds another to the long list of fatal or unfavorable results.

Fractures of the skull vault, either bursting or bending in their nature, are the most frequent causes of compression. Of prime importance is the fact that it is not the fracture, but the results of the fracture, which chiefly concern us. It is unfortunate that so much stress is laid upon "fractures" of the skull and that more is not given to the variety of conditions arising therefrom; for the symptoms which arise and the treatment employed are directed toward the intra-cranial conditions largely, irrespective of the bony injury.

In the present paper I desire to pass over any description of forms of fracture and the general symptoms attendant upon fracture complications and take up some of the underlying principles governing symptom-production and pathological conditions.

In a given case of head injury we are taught to recognize intra-cranial damage by a train of symptoms, including (a) local conditions; (b) focal symptoms; (c) eye symptoms; (d) circulatory symptoms; (e) psychic and nervous symptoms. Upon further study, we find that, with the exception of the first, all of these are dependent upon increased intra-cranial pressure or compression.

Cerebral compression may be local, general, or both combined. Manifestly local compression will produce either characteristic focal symptoms or isolated mental or psychic symptoms corresponding to the area involved, while general compression will produce an order of symptoms much more complex in their arrangement.

With the combination of local and general compression the task of selecting such symptoms as point to the former is of the utmost importance, as upon them must be based measures which in removing the first will relieve the second.

In recent intra-cranial trauma the compression which arises is the condition which demands relief, as will be readily seen when the production and action of compression is understood. The cerebro-spinal fluid (or subarachnoid fluid) is thrown out or secreted by the choroid plexuses and passes from the ventricles into the subarachnoid space through various openings (Monroe, Magendie and Luschka). It is taken up by the Pacchionian bodies and other cerebral veins and in this way escapes into the venous circulation. The experiments of Leyden, Cushing, Hill and others have demonstrated conclusively that by increasing the amount of subarachnoid fluid experimentally, a train of symptoms is produced corresponding accurately with those arising in intra-cranial injuries; and it is known that the symptoms in such injuries are those of this increased tension of the cerebro-

*Read before the Lynchburg Medical Society, June 8, 1910.

spinal fluid plus such focal symptoms as will arise from the local exciting cause. The latter may be so slight as to give rise to no individual symptoms, as, for instance, a slightly depressed piece of bone a small, circumscribed hemorrhage or laceration of a small area of cortical substances. At times the compression may be the result of a large extra or subdural hemorrhage, yet this clot acts as a compressing force and its presence also stimulates increase of cerebro-spinal fluid by blocking the venous drainage of the brain. It is to this increased tension of the cerebro-spinal fluid that we must look for an explanation of the progressive symptoms which arise.

In considering this subject, it must be borne in mind that we are dealing with a rigid cavity, filled with a non-compressible organ and with one large communication, which might allow of equalizing or expansion—*i. e.,* the spinal canal. It is considered that the brain is incompressible and the only way in which accommodation can be obtained for increased intra-cranial tension is by depleting the blood vessels. Therefore, when from any cause the intra-cranial pressure is raised (either by pressure from a clot or increase of cerebral-spinal fluid), the result is an anæmia of the cerebral tissues in proportion to the amount of pressure. The pressure of fluid being equal in all directions, it follows that the pressure from increased cerebro-spinal fluid is evenly distributed throughout the entire subarachnoid space and ventricles and affects all portions of the brain equally. The result of this increased tension is anæmia, and to anæmia must be ascribed all the symptoms produced.

Different portions of the brain are affected in order as follows: Cortex, brain stem, gray matter of cord, pons, bulb. In the order named, these show first irritation and stimulation then paralysis. Noting the fact that the cortex is earliest or easiest affected gives an explanation for the preponderance of symptoms characterized by movements of various muscles, errors in speech and sight and those symptoms sometimes described as faulty cerebration, and at the same time the experiments of Cushing, Hill and others show that there is a variation in the amount of pressure or anæmia which will produce certain symptoms in different brains. This may be taken as the explanation of why a large clot will produce marked symptoms in one case and in another a similar clot will cause very slight symptoms. The physiological equation enters greatly into this consideration and makes it difficult to lay down any well-established law as to the interpretation of symptoms. This anæmia can be brought about, experimentally, either by injections into the subarachnoid space or by pressure over a small area of cortex with a water or mercury filled bag. In either instance, as demonstrated by observation through a window placed in the skull, the resultant conditions are general and affect the entire brain.

It is important to note the effect the anemia thus produced has upon three centers—the vasomotor, vagus and respiratory. As the cerebro-spinal pressure is raised, anemia of the vasomotor centre comes on and this anemia stimulates general vasomotor contraction. The constriction of the general vascular system raises the blood pressure to a point where it will equal or just overcome the cerebro-spinal pressure and the vasomotor centre is again supplied with blood.

The vessels of the brain are not provided with vaso-constrictors, and, therefore, do not participate in the general rise in the blood pressure, the result being that with the general contraction the cerebral vessels remain dilated and accommodate an increased amount of blood. In this way we see that the condition resolves itself into a struggle between the intra-cranial pressure and the general blood pressure—the "life and death struggle," as it has been termed.

As Cushing puts it: "As soon as the compression of the brain reaches a level such that the circulation of the blood in the medulla is interrupted, even momentarily, the vasomotor center is stimulated, the blood pressure is raised and the medulla again receives blood. Therewith, however, the origin of the stimulus ceases and blood pressure naturally again sinks. If, however, compression of the brain persist, the circulation of the medulla will be again interrupted; a fresh stimulus and a fresh rise in blood pressure are the consequence. In this way arise the well-known modulating blood pressure curves. * * * Soon, however, the irritability of the vasomotor center is exhausted; blood pressure is no longer supported; the medulla remains empty of blood and the vital functions, which are regulated by the medulla, cease: respiration stops; the heart also." * * *

Here, then, we have the explanation for the high blood pressure in cerebral compression. It is well to call attention to the fact, however, that it is not constant and fluctuates as the medulla is anemic or supplied with blood. This accounts for our finding little or no increased blood pressure in some cases, and the rule should be observed to take continuous, or at least very frequent, records of the blood pressure to detect the significant rises. An equally marked effect is noted on the vagus center, where the medullary anemia produces slowing of the pulse. This symptom does not show the same variations as are noted in the blood pressure or the respirations, but comes on comparatively early (when the cortex gives its first signs of irritation) and persists with considerable regularity throughout the development of the compression. As Archibald points out this regularity in the slowness of the pulse, without change to correspond to the blood pressure, makes the symptom of less value as a guide to the rogress of the case. When the irritation of the vagus center has reached a certain stage the centre fails to respond to any stimulus and thereuon the pulse becomes rapid so that this fact and the further one that occasionally the vagus pulse may not appear at all should be borne in mind in the study of a given case.

The respiratory center is also affected, being first stimulated and later paralyzed. The carbon dioxide in the venous blood stimulates the respiratory center, and, therefore, in the early stages of compression, when there is considerable venous stasis in the brain, respiration is quickened; while, when anemia results, the center becomes inactive from lack of this stimulus and slowing of respiration results. It will follow, therefore, that the respirations will vary as the blood supply of the medulla changes; and, as the rise of blood pressure follows marked anemia, it will be found that the respirations will diminish or increase as the blood pressure rises or falls. This becomes more marked until there develops typical Cheyne-Stokes respirations. It should be always borne in mind in compression cases, however, that the best *time to recognize Cheyne-Stokes respirations is before they occur.* Close and careful watching of the patient for a few moments will often reveal a variation in the rhythm and volume of the respirations which, though slight, will tell the tale of progressive compression and allow the physician to anticipate more unfavorable symptoms; for the Cheyne-Stokes respirations invariably mean that the compression is progressive, extensive, and, unless promptly relieved, will undoubtedly prove fatal.

I have thus endeavored briefly to outline the production of the three most important symptoms of cerebral compression—the increased blood pressure, the slowing pulse and the varying respirations. Among other symptoms of importance are the changes in the fundus of the eye and pupillary change. In acute compression, the intra-cranial pressure forces the fluid along the sheath of the optic nerves, producing an edema of the papilla or choking of the optic disc. The symptom is said by Von Schulter to disappear in a few hours, even though the compression continues. When found, this symptom is of great value in diagnosing beginning compression. With reference to the pupils, the changes noted are of value more as guides to localizing the initial lesion or the point of maximum pressure, as from a clot, than as indications of the extent of the compression. In cases of local compression, an abnormal pupil on the affected side is of value as a guide, while dilated non-reacting pupils are an indication of advanced general compression.

One other point to be considered in the diagnosis of acute compression following injury is the so-called conscious interval. For a variable time after the injury the patient will be conscious and may complain of few or no symptoms. This lasts from half an hour to half a day or more, and is then followed by symptoms of cerebral irritation (the first effect of growing compression), such as twitching or jerking movements, headache (due to irritation of the dural fibres from the fifth nerve), stupor, nausea, restlessness and delirium. The stupor deepens until the patient can hardly be aroused and finally coma ensues. Along with these symptoms the ones I have described more in detail will be observed.

Having made a diagnosis of cerebral compression we must first determine whether it is increasing and then endeavor to localize the essential causative factor. The progress of the condition can be readily followed by watching for the symptoms of medullary pressure, but the physician must be alive to the danger of

watching too long or until compression has produced an irreparable amount of anemia.

At the best, these cases are very serious and there is no means of relief from any palliative measures. A hemorrhage might be checked by positive external applications or the administration of certain drugs, but one must consider, first, that all these measures, while controlling the hemorrhage, also reduce the blood supply to the brain and still further increase cerebral anemia, which is the most serious condition we have to combat; and second, that even if the hemorrhage be controlled by these means or by spontaneous clotting in the torn vessel we still have remaining a slot of unknown size and problematic location, impinging on more or less important areas, which will greatly hinder and almost surely cause unfortunate sequelæ.

I am convinced that in these cases it is our duty to relieve the compression as soon as we are certain it exists. No case is too far advanced for us to say with certainty that it is hopeless (and this is illustrated in the second case reported below), nor are we justified in presuming that any case is safe to leave because the symptoms are not grave.

The next important question to decide is where to operate. In a large majority of the cases the external or local symptoms will indicate a site for, at least, preliminary exploration, and it is always well, in a case demanding operation, to carefully explore scalp wounds or to open hematomata. In some cases, however, the local conditions will be at variance with the brain injury, as illustrated in the first case reported below, and under such circumstances the attending surgeon is called upon to exercise the closest study of ahe symptoms and to inquire carefully into the train of symptoms during and following the "conscious interval." Even after the most painstaking study of the case and a careful estimating of the relative importance of all the focal symptoms obtainable, one has sometimes to go on what seems to be mere conjecture. At times, these cases will be brought to the surgeon with no previous history and the only indications will be those of severe general compression. Under such circumstances, it is good surgery to trephine both sides of the head, if the first opening fails to reveal the trouble.

It is important to bear in mind that we are not concerned with a fracture, which may or may not exist, but with an organ which is undergoing a fatal compression. Opening the skull will afford drainage to this compressed organ and allow of a relief of tension which will enable the circulation to be re-established, and this is the urgent need in these cases; but, even with such relief, if the condition of the patient warrants it, we should search further and find the clot if one is believed to be present. To do this we may pass a spatula or other flat instrument in various directions from the trephine opening, when a clot can be seen or a discharge of bloody serum with small clots will indicate the location of the trouble. If such does not occur, an opening on the other side of the head should be made and the same procedure followed.

A sure indication of failure to relieve the essential cause is the absence of cerebral pulsation after the removal of the button of bone and opening the dura. When this occurs, further search is imperative to effectively relieve the patient.

Little need be said with reference to operative procedure. The first opening is usually an ordinary trephine one, applied over the probable site of the lesion, and this opening may be enlarged with bone forceps or made the starting point for an osteoplastic flap. When the trouble is supposed to be located at the base of the brain the opening should be made at a point which favors ready drainage of the fossa involved. The middle meningeal artery or a branch thereof being the one usually ruptured, the majority of operations are directed to the temporal region, where this vessel may be readily exposed. An opening, through Cushing's temporal muscle-splitting operation, passing through the bone at a point about an inch and a half above and one inch in front of the external auditory meatus will usually expose the middle meningeal artery at or near its division into the anterior and posterior branches. When operating at this point, it must be remembered that the middle meningeal may for some distance occupy a channel or foramen in the bone instead of simply a groove (as shown in the accompanying specimen), in which case the removal of a piece of the bone will tear the artery and give rise to a fresh hemorrhage. Through this opening it is easy to pass drains upward toward the

fissure of Rolando and the excito-motor tract, backward, forward, or, if desired, downward beneath the temporo-sphenoid lobe to drain the base of the brain in the middle fossa. Rubber tissue, loosely rolled or folded on itself, has proven most satisfactory for cerebral drainage in my hands, as it drains admirably and does not present meshes in which granulations or sharp edges of bone may become entagled to embarrass its withdrawal.

Fig. 1. Portion of temporal bone showing a distinct foramen for the middle meningeal artery instead of a groove.

To illustrate some of the points brought out in the foregoing paper, the following cases are reported:

Case I. A colored male, 30 years, was referred to me one evening with the following history: Twenty-four hours previously the patient had been struck on the right side of the head with a stick. The blow was said to have been a slight one and was not considered of any consequence. There was a slight abrasion on the right side, in the margin of the hair, at about the parieto-frontal region, probably three and a half inches above the zygoma. Twenty hours after he received the blow he complained of headache, was taken with nausea and vomiting and began to have convulsions. When seen by me some six hours later he was unconscious, having violent convulsive seizures lasting from one half to two minutes, with from one to three minute intervals of relaxation and perspiring copiously. There was marked pulmonary œdema with many fine mucous rales and a quantity of mucus rattling in his throat. The convulsions were general with excessive rigidity of the entire body and flexion of the wrists and feet. Babinski's sign was marked. There was nothing in the movements to indicate focal symptoms and no history of the exact nature of the onset could be obtained. Blood pressure during the quiescent period was 158-160 mm., but could not be taken during the convulsions. His pulse ran as high as 185 per minute during the convulsions and dropped to 60 during the interval. Pupils were moderately dilated and non-reacting and the fundus of the eye showed marked acute edema. During the seizures the respirations were deep, heavy and stertorous; while in the interval they quieted down. Even then, however, it was seen that they showed a slight rise and fall in rhythm and depth and beginning Cheynne-Stokes respiration was evident. Examination of the urine showed considerable albumen but no microscopical examination was made. The case had been referred as possibly one of uræmic coma, but this was excluded on account of the profuse diaphoresis, rapid pulse and brevity of the individual convulsions. Cerebral compression was diagnosed and based upon the character of the convulsions, vagus pulse during the interval, retinal edema and history of an injury. An operation was done without anaesthesia, entering the skull in the right temporal region. (In the absence of more definite focal symptoms the right side was chosen because the injury was on that side, and, in addition, it was noticed that during the convulsions the left wrist was more markedly flexed and more rigid than the right one.) Upon removing the button of bone, a small extra-dural clot was found and while removing a piece of bone anterior to the trephine opening, to facilitate the evacuation of the clot, a fracture appeared running down the coronal suture from a point beneath the external abrasion for a distance of two inches. It was in removing this piece of bone (which has been shown) that I found the unusual location of the middle meningeal artery and tore it at the same time. (Fig. 1.) The vessel was readily clamped, however, and the clot evacuated. Examination of the bone beneath the point of injury showed no other lines of fracture. An opening in the dura showed no subdural hemorrhage, but as there was little or no brain pulsation, I felt sure that there was further hemorrhage on the other side of the head. The patient had ceased to have convulsions from the moment the brain tension was relieved, but his pulmonary œdema was so bad that it was deemed unwise to trephine on the left side at that time, and we hoped that the decompression would give him temporary relief. The patient died in a few hours, however, of pulmonary edema, although he had no more

convulsions and his pulse lost all of its high tension and remained between 90 and 100 until shortly before his death. At the post-mortem it was found that in addition to the fracture described above another fracture had occured,

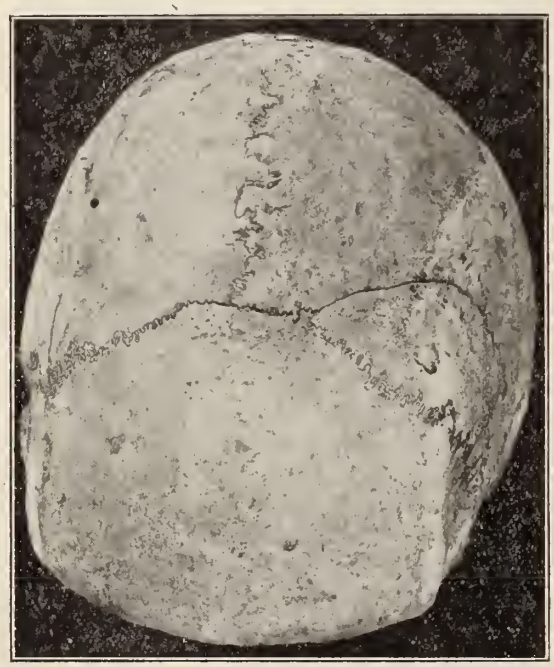

Fig. 11. Upper side is right side Site of trephine opening not shown. The second line of fracture is seen extending entirely across the vault.

commencing about one and a half inches to the left of the point of injury and following the coronal suture, and passing across the temporal bone into the base at the middle fossa. In the left temporal region was found another large clot arising from ruptnre of the left middle meningeal just below its bifurcation. The line of fracture can be seen in the accompanying specimen and illustrates the bursting character of the injury.

In this case there are some interesting and instructive points. The convulsions were the cortical response to the growing compression. As the compression increased it first irritated the cortex. It likewise produced medullary anemia. This medullary anemia stimulated the vasamotor center. From this center an impulse went out raising the blood by constricting the general circulation. The cortex at this moment co-operated with the stimulated vasamotor and produced convulsive movements, which still further tended to raise the blood pressure. The result of these two forces operating together was a temporary relief of the medullary anemia, partial re-establishment of the cerebral circulation and temporary subsidence of the more aggravated symptoms. In this way we could account for the variation in the respirations and also the variation in the pulse, the convulsive movements and the increased blood pressnre relieving the vagus center and causing it to let up in its inhibitory action. Thus the patient fluctuated between spells, first when the cerebral compression was in the ascendency and second when the renewed blood supply to the brain temporarily counterbalanced the compression anemia. The case had gone for some five or six hours before I saw and operated on him, and in the short time during which we kept him under observation before the operation it was obvious that the compression and its results were gaining in the unequal strnggle.

Despite the long delay in the case, it is possible that had the operation been done first on the left side the patient might have been saved. Yet there was no symptoms to indicate such a course and the few which we had pointed to the right side operation. In the light of the post-mortem developments the wrist symptoms were probably misinterpreted and the marked flexion of the left wrist probably indicated beginning irritation, whereas the comparative lack of flexion in the right wrist meant that the motor center on the left side has passed through the stage of irritation and was approaching the stage of paralysis.

Undoubtedly a better history of the early symptoms in this case and an opportunity to operate several hours earlier, would have afforded much more favorable chances for the patient's recovery. This only serves to emphasize the urgent necessity for an early diagnosis and prompt action. The fact that the convulsions stopped and that he had no more Cheyne-Stokes respirations as soon as the skull was opened on the right side indicates that, at least, partial relief was afforded by this operation.

His death was undoubtedly due to the water-logging of his lungs, embarrassing aeration of the blood and increasing the carbon dioxide in the brain.

The second case, the subject of which I present herewith, is as follows:

J. B., age 22, injured Monday afternoon, March 28th, about 4:30 P. M. Companions state that he was struck in middle of forehead with a batted ball. He continued to play ball for one inning after he was struck and then complained of feeling badly and left the grounds. Dr. Frank Upshur saw him shortly afterwards, found him nauseated, stupid, inclined to sleep. He went into a gradually deepening coma until by 11 P. M. he was unconscious. Dr. Upshur called me to see him about 11 P. M.

I found him with Cheyne-Stokes respirations, breathing about 8 to 10 times per minute, pulse 40 to 50. There was absolutely no bruise on the forehead, but, upon shaving the head, a very slight tumefaction was noticed above the right ear in the temporal region, right pupil dilated and non-responsive, left pupil contracted, but responded slightly. Had loss of sensation over entire body. Had twitching movements of right hand and arm and right leg, and right foot extended. Blood pressure 130.

His condition indicating advanced compression, I operated at once and made an incision in the right temporal region over slight swelling referred to. Upon splitting the temporal muscle and exposing the bone, a fracture of the squamous of the temporal bone with slight depression was found. The fracture was about one inch in length, crecentic in shape, and situated about three-quarters of an inch below the margin of the squamous portion of the temporal bone. The temporo-parietal suture was loosened just above the fracture and pressure thereon would cause a slight amount of blood to exude.

A three-quarter inch button of bone was removed just above the fracture and upon lifting it out, a "finger" of clotted blood was rapidly expressed through the opening for a distance of three inches, showing extra dural-clot under heavy pressure. The opening was slightly enlarged upward with bone forceps in order to allow for the removal of the clot, and, in removing it, the posterior branch of the middle meningeal artery was exposed and showed where it had been lacerated by the fracture. It was ligated and then an osteo-plastic flap was made, extending back from the already exposed bone opening about one and a half inches in diameter, with the base toward the mastoid process. This allowed of the evacuation of an immense quantity of clot, about four ounces, but with this evacuation a free hemorrhage was noticed coming from the occipital region. It was not considered wise to remove more bone in an effort to get at this bleeding vessel, which was probably from a meningeal branch of the occipital. The occipital extra dural space was packed with gauze to control hemorrhage, a cigarette drain placed in the original opening the bone flap replaced and the wound closed and dressed with some pressure to control the bleeding.

Immediately upon removing the button of bone and coincident with the escape of the clot, his pulse jumped from 50 to over 100 and from that time on it ranged from 85 to 110.

Next morning he was conscious, recognized his doctor and his mother, and requested that he be allowed to smoke a cigarette and have a glass of coca-cola. He has made an uneventful recovery with no bad effects except paralysis of the right superior oblique muscle.

The interest in this case is first in the statement of the patient, corroborated by witnesses, that he was struck in the middle of the forehead; yet a depressed fracture was found on the right side above the ear. I have no explanation to offer for this discrepancy except that somebody was mistaken. In such a case, we had all the symptoms of advanced compression, except high blood pressure. The case was so urgent that a continuous record was not taken. I believe, however, that it had advanced so far that the vasamotor center was passing into the last stage of compression and giving up the fight. The Cheyne-Stokes respirations with the patient breathing but ten times to the minute and the vagus pulse down to 40 per minute show that the compression had reached its height and, in a very few hours, the patient would have gone down the other side.

The only local condition found was the very slight tumefaction in the right temporal region, hardly enough to create suspicion; yet it was the only evidence of injury on his head. The twitching movements of the right hand and leg might have been construed as indicating pressure on the left side of the brain. I took into consideration, however, the advanced stage of the compression and determined that the lack of movements on the left side indicated the more advanced condition.

406 *West Grace Street.*

THE SOCIAL ASPECT OF GONOCOCCAL INFECTION OF THE INNOCENT.*

By W. A. NEWMAN DORLAND. A. M., M. D., of Chicago, Ill.

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The phase of this very important symposium upon which I have been asked to write is a difficult one to approach. It is a simple matter to treat generally of gonorrheal infection of the individual, but when we look beyond the primary sufferer, and begin to think of the pernicious—though often unintentional—influence of this individual upon others more or less intimately related—in other words, the influence upon the home and society at large—we sink beneath the surface and lose ourselves in the obscurity of a large and far-reaching subject. It is a subject which involves a number of questions, such as personal chastity, the physical necessity of intercourse, the curability of gonorrhea, and the stand assumed by the medical profession at large in regard to venereal diseases in general.

THE PERCENTAGE OF GONORRHEAL CASES IN WOMEN.

As in all sociologic problems, the collating of reliable statistics upon this matter is almost impossible. One man, influenced by the religious and moral aspect of the question, will ascribe all cases of disease of the genitalia in the innocent members of the family or community to gonococcal infection, and his statistics will be as unreliable as they are alarming in their magnitude. Another, who would palliate the indiscretions of youth or the lasciviousness of the innately immoral, will find but a small percentage of the clinical cases that fall into his hands attributable to gonococcal infection, and will accordingly err in the other direction. Broadly speaking, the middle ground will more nearly approximate the true proportion of innocent sufferers from venereal infection, and even then the figures must be studied according to the social rank of the affected individuals. It is natural to suppose—and clinical experience confirms the accuracy of the supposition—that the percentage of the affected women and children will be larger in the lower and more uncleanly classes of the people. The available statistics prove that this is so, and the disproportion between the two classes is remarkable. I was especially impressed by this fact when reading not long since some estimates upon this matter collated by Dr. Robert N. Willson,[1] of Philadelphia, from some of the gynecologists of our city. Those men whose clinical hospital practice had been drawn largely from the slums of the city, as Dr. Joseph Price, whose experience at the Philadelphia Dispensary had been most extensive, attributed the largest proportion of pelvic inflammatory cases to gonorrheal infection. Dr. Price claims that "90 per cent. of all pelvic suppurations are due to gonococcal infection." Richard C. Norris states that "among the latter (the dispensary class) I would approximately estimate a large majority, probably 80 per cent., as due to gonorrhea." Barton Cooke Hirst believes that "the majority of inflammatory cases are due to gonorrheal infection," and he puts the proportion at something like 75 per cent. Clark says that "of the pelvic inflammatory cases I believe I would be safe in saying that 50 per cent. originated from this source." At the other extreme are to be found Davis and Noble, the former putting himself on record as believing that among hospital patients only from 5 to 10 per cent. show evidences of venereal affections, while in private practice the percentage is much smaller, while Noble, referring to all operative work, states that less than 10 per cent. are of gonorrheal origin. My own experience in the out-patient departments of the Pennsylvania and Polyclinic Hospitals would give from 60 to 75 per cent. of gonorrheal infection in pelvic inflammatory cases.

We will be safe in assuming, then, that among these lower and submerged classes of the community at least 50 per cent. of the pelvic inflammatory diseases of women may be traced to infection by Neisser's bacillus, and probably much more than this. It is interesting to note in this connection that Dr. Price was operating upon "pus tubes" of gonorrheal origin long before Baer and other prominent gynecologists admitted the existence of this condition—simply because he met with them among these lower classes, while the others did not encounter them in the strata of the social scale in which their work lay. Belfield,[2] of Chicago, has very recently pointed out that a similar condition of "pus tubes" exists in the male, resulting in impotence and sterility and acting

*Read at the thirty-fifth annual meeting of the American Academy of Medicine, St. Louis, June 6, 1910.

as a prolific cause of gonococcal infection of the woman. He states that "pus infection of the seminal tract plus occlusion of the ejaculatory duct soon converts vesicle, vas and finally epididymis into a closed abscess." It has been claimed by genito-urinary experts that at least 50 per cent. of the sterility in men and women is due to gonorrhea, which disease is usually transmitted from the man to his wife. As an additional result of this infection, pelvic inflammatory, or even suppurative, disease develops, and it will not be exaggerating to state that probably not less than 50 per cent. of all abdominal operations performed upon women may be traced to gonorrhea, while even after excision of the affected internal organs of generation a large majority of these women never become thoroughly cured of the loathsome infection. As illustrative of the frequency of gonorrheal infection of women I might refer to a study of 419 conservative abdominal operations performed by Hunter Robb,[3] in which 109 of the patients gave a history of gonorrheal infection, positive in 72 of the cases. Sixty of these women were married, 33 single and 9 widowed.

Nor do the women alone suffer as innocent victims of the venereal excesses of their husbands. I shall not touch upon the question of ophthalmia neonatorum, that dread condition to which the offspring of gonorrheal women are exposed. This must be left to the ophthalnologists. The oculists tell us, however, that gonorrhea and syphilis are direct causes of over one-fifth of all the blindness of the world. In addition, Hamilton[4] and others have recently enlarged upon the surprising increase in the number of cases of gonococcus-infection of the vaginas of little children in out-patient practice. During the past three years in the Vanderbilt Clinic of New York City the total number of proved cases of vulvovaginitis in children of gonococcus origin was, as Hamilton has shown, 344, and in 40 of these girls, all whom it was possible to examine, the gonococci were found to have invaded the upper part of the vagina. It is inferable, therefore, that in all the cases, 344 in number, the germs had invaded the vagina as far as the cervix uteri. In a large number of these cases a history of parental infection was obtainable.

FEMININE IGNORANCE OF VENEREAL MATTERS.

So much for statistics. Now, it is worthy of note that most boys and men, because of their more general education in sexual matters, know of the existence of gonorrhea and other venereal diseases and of the imminent possibility of infection thereby. They are, consequently, largely on the watch for such matters, especially if they be at all loose in their morals, and upon the earliest indications of an infection in most instances they immediately institute a course of treatment, whereby the more serious consequences of their indiscretion may be avoided. It is likewise true that most women, on the other hand, are painfully ignorant of these diseases and their clinical manifestations and even of the existence of such pathologic entities; and, accustomed as they are at some time in their lives to leucorrheal discharges, they are not alarmed when gonorrheally infected. Consequently, they do not, in many instances, institute treatment until the disease has passed well beyond the acute stage.

How often do we hear of young women coming to the operating table within the first year of married life! Tubal or ovarian disease, the medical attendant says, but we know that back of this statement, in a very large proportion of these cases, there is a history of gonorrheal infection. The young women are immolated at the shrine of the Juggernaut of immorality, and so often think that they are paying the penalty of married life to be expected by a certain percentage of unfortunate women.

THE ATTITUDE OF THE MEDICAL PROFESSION TOWARD VENEREAL DISEASES.

In the light of this deplorable state of affairs it becomes evident that there is an urgent duty devolving upon the higher and more ethical portion of the medical profession. A serious danger menaces the health and even the lives of our women. It matters not how carefully and jealously a girl may be reared by her parents, when she approaches the marriage altar she is at once exposed to the possibility of venereal infection, no matter how cultured or highly born her fiancé may be. Respectability is no bar to the entrance of the gonococcus, and, in fact, the more or less freedom of life which the boys and young men of our better classes enjoy in a sense predisposes to gonococcal and syphilitic infection. When it is known that the young man in question has been somewhat of a "sport" and a "good fellow"

around town there should at once be awakened in the minds of the girl's parents a lurking suspicion of danger. I do not know that it is possible at this stage in the development of our social fabric to insist upon a trustworthy medical certificate of health, but it may be that in the interest of the State such a certificate may some day become as necessary as is a marriage license to-day.

There is something, however, which we who are believed to represent the ethical side of the profession can do, and should do, at every possible opportunity that presents itself to us. It should be our bounden duty to inculcate in the general masculine mind the grave seriousness of venereal infection. Syphilis is generally regarded as a virulent infection, and as such is dreaded by most men; but how often do we hear of physicians who pooh-pooh at gonorrhea, and by their very manner inspire the victims of this disease with the idea that after all, apart from the temporary annoyance and discomfort of the attack, it is but a trifling matter! This is all wrong, and aside from the immorality of the attitude of these physicians, which it is not my province to touch upon, it is not scientifically correct nor does it conduce to the better interests of our profession and our patients. Such physicians are not giving to these diseased men the best advice, nor are they safeguarding the community as their theoretic signatures beneath the Hippocratic oath would bind them to do.

This brings me to the real gist of my paper—namely, the more social aspect of the question of the masculine sexual appetite, and the communal management of gonorrhea.

IS ABSOLUTE CONTINENCE COMPATIBLE WITH HEALTH?

The thanks of the profession and of the people at large are due such men as Bryant, Hübner.[5] Acton and others, who have labored long and industriously to propagate sound teachings on these moral scientific questions. Through the efforts of these men and others of the same liberal and scientific stamp it is now becoming generally known that absolute continence is not detrimental to health, notwithstanding the teaching of many men to the contrary. It will be interesting to note briefly the views of eminent authorities on this subject, as quoted by Hübner. Thus, Acton[6] remarks: "I have, after many years' experience, never seen a single instance of atrophy of the generative organs from this cause (chastity). * * * It is not a fact that the power of secreting semen is annihilated in well-formed adults leading a healthy life and yet remaining continent. * * * No continent man need be deterred by this apocryphal fear of atrophy of the testes from leading a chaste life." Again, Beale,[7] of London, remarks: "The argument that if marriage cannot, for various reasons, be carried out, it is nevertheless necessary, upon physiologic grounds, that a substitute of some kind should be found is altogether erroneous and without foundation. It cannot be too distinctly stated that the strictest temperance and purity is as much in accordance with physiologic as moral law, and that the yielding to desire, appetite and passion is no more to be justified upon physiologic or physical than upon moral or religious grounds." The English surgeon, Bryant,[8] says: "The functions of the testicle, like those of the mammary gland and uterus, may be suspended for a long period, possibly for life, and yet its structure may be sound and capable of being roused into activity on any healthy stimulation. Unlike other glands, it does not waste or atrophy for want of use." Sir James Paget[9] adds: "Chastity does no harm to mind or body," and James Foster Scott[10] concludes: "There is an erroneous and widely spread belief that exercise of the sexual functions is necessary in order to maintain health. * * * The reproductive glands have been so constructed that their specific activities can be suspended for long periods of time without their atrophy or the slightest impairment of function. * * * It is a pernicious pseudo-physiology which teaches that the exercise of the generative functions is necessary in order to maintain one's physical and mental vigor of manhood."

These quotations are sufficient to dispel any doubt upon this matter. They remove effectually the only quasi-legitimate plea for illicit intercourse that can be advanced, and as illicit intercourse is practically the only method by which gonorrhea is propagated throughout a community, they aim a mortal blow at this evil. The formula which Hübner has suggested tersely expresses the whole truth—namely, "Illicit connection is equal to venereal disease."

We may, more accurately, reverse this and state that venereal disease implies illicit intercourse.

The stamp of disapproval of all learned medical bodies and associations such as this should emphatically be placed upon the dissemination of teaching other than that indicated by these men who have given years of closest study to the subject. If such a stand by the ethical portion of our profession could be supplemented by an emphasis of the gravity of gonorrheal infection from a social as well as from an individual standpoint, a large step forward will have been taken toward the limitation and ultimate eradication of this very serious popular evil. This brings me to a consideration of the next phase of the question.

SHOULD GONORRHEICS MARRY?

Should gonorrheics marry? That depends upon just what is meant by the term "gonorrheic." If it includes only those individuals who are actually suffering from gonorrhea in some stage of the disease—acute, subacute, or chronic—there can be but one possible answer. Such victims of their indiscretions should most emphatically refrain from marriage until free from the disease. Should they contract a marriage before this event, they are morally, if not legally, criminal, and the sickness or death of the woman so married resulting directly from venereal infection of the pelvic organs should be laid at the door of the guilty party. The view held by some extremists that the term "gonorrheic" should embrace all individuals who are having or have had the disease at a more or less remote period cannot be accepted by us. Such a contention admits at once a belief in the incurability of gonorrhea—a view which we are not willing to accept in the light of our present knowledge of the disease. As far as womankind is concerned, there is a very grave doubt as to the possibility of an absolute cure. This danger is vastly increased if the gonococci have found lodgment in the uterine cervix or upper portion of the generative canal. In men, probably the great majority of cases of gonorrheal infection end in an absolute cure, without resultant stricture or other apparent ill effect. A small percentage, comparatively speaking, remain uncured, and are constant menaces to those with whom they are sexually intimate. No man, then, who shows the slightest amount of urethral discharge, even amounting to only a slight gluing of the lips of the meatus, should entertain the thought of marriage until his every symptom has subsided for months or years.

THE CURABILITY OF GONORRHEA.

Is gonorrhea a curable disease? I wish to place myself on record as being a firm believer in the curability of this disease, especially when taken in the earliest stages and subjected to a proper course of treatment. As Hübner has clearly indicated, there are a number of axioms which admit of no controversy and which completely cover the entire question of the curability of gonorrhea. These are as follows, and with this enumeration I will close this paper: (1) The presence of gonococci in the urethral discharge or in the threads in the urine is positive proof that the disease is not cured. (2) The absence of gonococci from a urethral discharge is not a proof that the disease has been cured. (3) A person recovering from gonorrhea is not cured so long as there is any discharge from the meatus. (4) Clinically, any discharge from the urinary meatus is an indication of the presence of a gonorrheal infection. (5) There is no clinical distinction between a gonorrhea and a urethritis—that is, the so-called "post-gonorrheal urethritis" is merely a chronic stage of the infectious disease, and the post-gonorrheal discharge is really and invariably gonorrhea. (6) The urethra and its annexa cannot harbor gonococci without producing symptoms. (7) Whenever a person has kept his urine in for twelve hours, and there is repeatedly found no discharge after several separate examinations during this period, that person is cured. (8) Gonococci may lie dormant in the urethra or its annexa for months or years, but always with more or less distinct symptoms, as a drop of pus in the morning or a slight meatal gluing. (9) There is no such thing as a relapse in a cured gonorrhea. (10) One attack of gonorrhea, even when cured, does not prevent a subsequent infection on a new exposure to the germs. (11) Inability on the part of a patient to hold the urine for twelve hours by day is a very suspicious sign that he is not cured (Hübner). This last statement is one that I am not sure I can altogether endorse. I believe there are some individuals whose vesical capacity will not permit of a twelve hours' retention of urine. It is well, however, to endeavor to subject each patient

to this test, for if it succeeds the cure may be pronounced absolute.

1. "The Relation of the Medical Profession to the Social Evil," *Jour. of the American Medical Association*, July 7, 1906.
2. *Jour. of the American Medical Assoc.*, Dec. 25, 1909.
3. *Transactions of the American Gynicological Society*, 1906.
4. *Jour. American Medical Assoc.*, April 9, 1910.
5. *New York Medical Journal*, Jan. 25-Feb. 6, 1909.
6. "The Functions and Disorders of the Reproductive Organs," William Acton, 4th edition, p. 97.
7. "Our Morality and the Moral Question," Lionel S. Beale
8. "Text-book of Surgery."
9. "Sexual Hypochondriasis."
10. "Sexual Instinct," p. 95.

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GONOCOCCAL INFECTIONS IN WOMEN.*

By HENRY O. MARCY, M. D., LL. D., Boston, Mass.

I suppose that it is unquestioned that men suffer far more often than women from gonorrhea. In the great majority of cases in woman the disease is unrecognized and may exist for a long period.

A vaginitis produced by the gonococcal infection, even in its acute stages, often gives very little suffering; in the chronic stages little or none. In either instance, it is usually considered by the patient as a leucorrhea of little moment. That this condition is infective, owing to the specific organism when the woman thinks herself well, often has a most serious demonstration. I have personally known a number of young men suffering from an acute gonorrhea who were able to trace the infection from a common source while the woman herself was not a sufferer and gave little or no evidence of the disease. This is not surprising when one considers the vaginal canal and its protective mucous membrane. The pavement epithelium of the vagina is such a protective layer that it forms a barrier to the deep penetration of the gonococci, although they reproduce in this most favorable of culture media.

The vaginal epithelia are sometimes less well developed, as in childhood, and the gonococci rapidly penetrate, so that the mucosa is swollen and inflamed within one or two days after the infection. Soon the power of a deeper penetration is lost, owing to the protective leucocytes, legions of which are sent at nature's telegraphic summons.

Some claim that a specific urethritis in women is common. This has not been often observed at our clinic. In intercourse the urethra is compressed laterally and drawn up under the pubic arch, so that it escapes primary infection and the flow of urine washes this short canal. The glands of Skene and mucous follicles are not seldom infected; the glands of Bartholin less often.

A chronic gonorrhea may remain indefinitely and, like a smouldering fire, start the flames of a new infection, when a husband, or former lover, has long been immune.

The mucous surfaces in either sex, when subject to infection, furnish a most favorable field for even the minute sowing of the seed being followed often by dire and astonishing disaster.

The history of the development of the gonococcus presents entirely another picture when transplanted within the Fallopian tube. Here there is little chance for exit, and conditions pertain not very unlike the development of the bacillus coli-communis in the appendix.

This group of diseases, under the common name of pus tubes, originates from a variety of causes, of which gonococcal infection is one of the most common and dangerous. Their early recognition and treatment offers one of the most brilliant illustrations of modern research and surgical victory.

The object of this paper is twofold: first, to show the all-too-common danger to which women, even under the protection of the bonds of matrimony, are liable, and, second, to emphasize an early recognition and treatment of an infection which still too commonly goes unrecognized until life itself is seriously imperiled.

Permit me to give the following illustrative case: J. T., the son of rich and indulgent parents, the especial pet of a weak society mother. The boy had grown up without restraint with his every wish and whim gratified. His wedding was a social event duly celebrated, the bride a very youthful, most beautiful woman. Six weeks after the wedding, the husband consults me, with the statement that he had been under the care of a specialist for gonorrhea and had married only after the assurance that he was cured. The wife was suffering from pelvic peritonitis. I removed both tubes and ovaries, one tube having already ruptured, and after a prolonged convalescence she was again well.

The son had confided this state of dishonor

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to his doting mother, whose conscience was only satisfied by a statement of the cause of the disease to the poor sufferer. The mother sought extenuation, if not condonement, by the fact that the son had married subject to the approval of his physician. A bill of divorce was obtained by the indignant wife and the happiness of two households ruined. Some two or three years later, I was called in consultation to the bedside of this poor woman dying of pneumonia. Grief and sorrow, however, had done its work and she rather welcomed than feared the result.

Incidents like this, although perhaps not so dramatic, have come to the notice of most of my hearers, and dot the checkered pathway of life in every community.

As an illustration of the flotsam and jetsam of our social fabric, this statement recently came to me where least expected, from one of the young physicians who had been associated with Dr. Grenfell in his missionary benevolent work in Labrador. Some of you will remember the little colony, with its dogs and sleds and appurtenances pertaining to arctic life, which was exhibited at the not very recent fair in Buffalo.

The seeds of civilization were sowed in this colony at this time, and have fructified and borne fruit in their northern clime until gonorrhea has become prevalent to a remarkable degree.

One of the very wise Seniors of our profession, whom I met in the earlier period of my career, once said to me that he could not understand why it was that God had placed in the desires of men and women the almost unconquerable impulse for sexual gratification, and had hedged about the same with so many dangers.

The sanitary laws of the Mosaic code are as valuable now as when issued, and the religious rite of circumcision has a scientific value which to-day is recognized as not at an earlier period.

Then promiscuous intercourse was accepted as a general custom. Palestine is a land so wanting in water that the discovery of a spring or permanent well made a man famous. Soap was unknown, hence circumcision became a necessity for cleanliness or decency.

The cruel edicts issued in those early wars for the destruction of the women of conquered tribes were evidently based upon the dangers resulting from venereal diseases. Prophylaxis is exercised now as never before, a singular illustration of which has recently come to my knowledge. A portion of our military force serving in the Philippines has been provided with a bottle of argyrol solution and a medicine dropped with the instruction that it should be used as an urethral injection immediately after intercourse with the native women. Such advice may make men too confident of immunity and reminds one of a facetious story told in illustration of the experiences of the late Dr. Ricord, of Paris. A very influential man brought his son to this great physician, requesting him to take the young man through the hospital wards and show him the terrible ravages of specific diseases as a warning of possible dangers to the inexperienced youth. At the close of the visit the good professor emphasized the dangers incident to an immoral life and begged him to live in a way to avoid them. At once the sprightly youth replied: "My dear doctor, this morning I have seen such evidence of your great skill and wisdom that I shall come to you at once upon the appearance of the first symptoms of disease."

I believe the relation of the sexes is much more carefully guarded than ever before, and that, as a consequence, venereal diseases are much less dangerous to the public than formerly. A strict hygiene would eliminate them; however, this is too much to expect, although every effort should be made to minimize this social crime and curse of the body politic. Only physicians can appreciate the widespread prevalence of these diseases even at the present. A physician some time ago said to me, in satiric reference to it, that a young man's education might not be considered complete until he had had at least one attack of gonorrhea.

In some of the better classes of English society the fathers of each of the parties about to enter into the matrimonial state demand a conference of their respective physicians to know if there is any reason why marriage may not be consummated. The physician of the young man must show evidence that there is no taint of infection where "the sins of the fathers may be visited upon the children of the third and fourth generation."

Mental, moral and physical soundness should

be demanded from all who enter the holy alliance of matrimony.

These are basic conditions for the safety of a nation and the perpetuity of the race.

180 *Commonwealth Avenue.*

INTUBATION FOR THE RELIEF OF STENOSIS IN LARYNGEAL DIPHTHERIA.*

By P. D. LIPSCOMB, M. D., Richmond, Va.

As the fall season has come and the diptheria period approaches our program committee seemed to think it proper to bring before the Academy some phase of diphtheria; so I have selected as the subject of this brief paper *Intubation for the Relief of Stenosis in Laryngeal Diphtheria.*

This operation was first attempted about 1855 in Paris, but met with scant approval. Trousseau opposed it so strongly that it fell into disrepute for about twenty years until 1880, when O'Dwyer, of New York, revived the subject. He did so chiefly because of the high death rate of trachcotomy. He, likewise, met with little or no encouragement for a long time, but on account of his persistent work, and by the assistance of Waxham, of Chicago, intubation finally received the marked recognition to which it was entitled; and now it is accepted everywhere as the operation of election in laryngeal diphtheria requiring operative intervention. We are told that in a Paris hospital in the wards named after Trousseau, the bitter opponent of intubation, the operation is now performed on all cases needing it.

Intubation became rather popular some twelve or fifteen years before the introduction of antitoxin, but the operation was attended by a mortality high enough to prevent its enthusiastic adoption. Not until antitoxin became perfected and was put into universal use did intubation offer such sure and permanent relief to that class of laryngeal cases which would almost invariably die of suffocation without the operation. In pre-antitoxin days, the mortality in intubation cases was about 80 per cent. In the past ten years, the mortality in intubation cases has been about 30 per cent., the notable reduction being due apparently entirely to the early and persistent use of antitoxin in sufficiently large quantities to produce the desired effects. It is quite impossible to say what effect antitoxin has upon the mortality of tracheotomy, for, since the introduction of intubation, trachcotomy has been entirely abandoned except where intubation cannot be had, or in a small number of cases of trachcal diphtheria in which the membrane develops below the point of the intubation tube.

A very limited experience will convince the operator of the difficulties encounted in securing the consent of the parents to tracheotomy. This was usually responsible for the postponement of the operation until the child was moribund, so the results were very discouraging. Intubation being a bloodless operation and not requiring an anesthetic, and with the unqualified assurance that it is the very best thing to be done for the patient; that the relief of the distressing dyspnea is instantaneous, and that the chances of recovery are greatly increased, there is usually little difficulty experiened in getting the consent of the parent to the operation, and, hence, the lives of *many children are now saved that would otherwise be lost.* While the indications for immediate operative intervention, whether it be intubation or tracheotomy, are very clear, it is a matter of great importance that the operation be not postponed too long while the laryngeal stenosis is developing. It is, therefore, highly important not to confuse catarrhal croup with stenosis of the larynx due to invasion of diphtheritic exudate.

Without going into the symptomatology of catarrhal croup, it might be well to recall that it usually comes on suddenly in the night, that the attacks are intermittent, and are generally relieved, either temporarily or permanently, by an emetic. This is not true of membranous croup, the symptoms of the three stages of which are so succinctly stated by Welch and Schamberg that I quote from them as follows: "In the first stage the symptoms consist of cough and hoarseness; in the second, of atonia and dyspnea, and in the third, of suffocation and asphyxia, speedily ending in death if relief is not afforded." With the active onset, the swelling and exudate within the larynx gradually increase, respiration becomes more difficult, and dyspnea more distressing. Retraction of the sternum and sinking in of the lower ribs are noticed with every inspiration. The face becomes livid from lack of sufficient oxygen. The child is restless, and looks vainly in every direction for relief. A more pitiable

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condition than that of a little child suffering from an advanced attack of membranous croup is rarely seen. The physician who insists upon surgical consultation in an obscure or suspected condition will not delay in these cases when delay means little less than criminal neglect.

There is a class of cases not so severe as that just described, yet in my experience requiring intubation. I refer to the cases that have decided stenosis of the larynx, but are not in imminent danger of suffocation. If no improvement in the breathing is noted in the preceding eight or ten hours, and the case is accessible, it is unwise to permit it to go over night without a tube. Otherwise, it should be watched closely and allowed eight or ten hours more, by which time there will either be improvement or the general condition will appear decidedly less satisfactory, and the patient, especially if a young child, is gradually wearing out, and is in danger of death from sudden collapse due to sheer exhaustion or from fatal stenosis of the larynx. Intubation affords instant relief, and the child lapses into quiet sleep and much needed rest, neither of which he has probably had for perhaps twenty-four hours, and wakes greatly refreshed and wonderfully improved.

Whether laryngeal diphtheria exists as a primary condition, I am unable to say, but it is distinctly a local condition, and it is true that laryngeal cases offer a hopeful prognosis. Rarely does a septic condition follow intubation of the larynx, provided it is done in time and the frequent absence of constitutional symptoms may be due chiefly to the scarcity of lymphatics in the larynx and trachea.

DANGERS AND DIFFICULTIES OF INTUBATION.

The operation is not dangerous when performed by an experienced operator. Instances have occurred when the exudate was pushed down into the trachea by the tube, giving rise to a serious, if not fatal, complication, but this rarely happens. At the Willard Parker Hospital, New York City, where, in the heavy diphtheria season, intubations are done every day, it occurred only once in my service of twelve months, and was relieved by immediate extubation. This patient expelled a large mass of dislodged membrane and did not require reintubation. A clumsy operator might produce asphyxia by prolonged attempts at intubation, or laceration of the tissues, or, perhaps, a false passage by forcing the tube into one of the ventricles of the larynx. This can hardly occur with the O'Dwyer tube—so smoothly and neatly finished at the point. All of these accidents have occurred, but with care are easily avoided. Occasionally when the point of the tube enters the glottis a sharp spasm is excited in the muscles of the larynx, so that to force the tube in might do damage. It is best to wait a few seconds for relaxation, when the tube will enter easily. If, on account of swelling, edema, or inflammatory thickening of the tissues within the larynx, it is found that too much force is required to insert the tube that corresponds to the age of the patient, a smaller tube must be used temporarily. This can very soon be replaced by the proper tube. It is true that bronchopneumonia and bronchitis occasionally follow intubation, but it is equally true that fatal results may follow collapse of lung tissue to which air does not have access, and that stenosis excepted, bronchopneumonia and bronchitis are the principal sources of danger in membranous croup, and that this danger is increased rather than diminished by tracheotomy.

REMOVAL OF THE TUBE.

The length of time the tube remains in depends upon the stage of the disease, the age and general condition of the patient. Young children will require the tube longer than older ones. If the tube is not inserted until late in the disease it may be removed early. The average patient who does well, I extubate usually on the fourth or fifth day, even if the tube has to be reinserted. In septic conditions with a profuse purulent discharge in the larynx and trachea, the tube is removed for cleansing as early and as often as is necessary to keep it clear. Should the edema and swelling within the larynx subside earlier than was anticipated, the child may cough the tube up and swallow it. No uneasiness on this account should be felt. The tube always passes through the intestine.

PROLONGED INTUBATION.

Before closing this paper, I wish to refer to the condition of prolonged intubation, designated as chronic tube case. Despite the free and early use of antitoxin, and the greatest care in the process of intubation and extubation, about once in a hundred times it happens that

the tube cannot be dispensed with at the proper time for extubation. The tube must be reinserted over and over again through a long series of operations. This is an unfortunate occurrence, thoroughly perplexing to the operator, and very distressing to the patient. It also occurs equally as frequently with the tracheotomy tube, and is due to persistence of false membrane in the larynx or trachea, to thickening of the soft parts or to organization of exuberant granulations, resulting in cicatricial contraction. When I was connected with the Willard Parker Hospital, there were several such cases there. Two of them were sent to another hospital where a preliminary tracheotomy was done, and the larynx subsequently curetted. One made a satisfactory recovery, the other died. I am informed that the remainder of these cases followed the usual course, and died of some intercurrent affection—one or two of scarlatina, one of measles, etc.

The latest approved treatment for chronic stenosis of the larynx, which condition is, fortunately, rare, is long continued intubation until the granulation tissue subsides and the cicatrices cease to contract. Fortunately, I have had no such case to deal with outside of the Willard Parker Hospital.

I take just a moment to refer to the intubation cases I have treated in Richmond. I have classified them according to the demand for operation and find that there are six casses which may be classed as non-urgent and ten cases as urgent, making sixteen cases in all. Of the non-urgent, the tube was used in Nos. 1 and 16 because of distinct indications and inaccessibility of the patients. In No. 9, it was used because of distinct indications, tender age (6 months) and inaccessibility of the patient. In Nos. 3, 7 and 11 it was used because of distinct indications: The following cases were urgent: In No. 2 the tube was used because of intense dyspnea. The patient was seen in the third stage and died in less than three days of septic intoxication. In No. 10 it was used because of intense dyspnea. Patient was first seen at the end of the third stage and died in two hours of septic intoxication. It had been ill for more than a week and was sent from the country for diagnosis. In No. 14 it was used because of marked dyspnea. Patient was first seen at the beginning of the third stage. The temperature was over 106 degrees, and death ensued in two and a half days of septic intoxication. Patient had been sent in from the country for diagnosis and treatment. In No. 5 the tube was used not so much on account of urgent, but rather for prolonged dyspnea, to which the patient was rapidly succumbing when first seen. In Nos. 4, 6, 8, 12 and 15 the tube was used because of intense dyspnea; otherwise uncomplicated. In No. 13 it was used because of extremely intense dyspnea. The patient was in imminent danger of immediate suffocation.

It is fair to say that Case 6 died of lobar pneumonia and purulent pleurisy, as post-mortem examination showed, twenty days after the first intubation. This patient was intubated and extubated four times in the twenty days, and was never able to go without the tube more than half an hour at the time. This is the only case in my series that bordered on chronicity; and the patient died of complications before a definite diagnosis as to that condition could be established.

I have had four deaths in sixteen cases, giving a mortality of 25 per cent., which is 5 per cent. lower than the reports from the contagious disease hospitals of the larger cities show. If I may exclude Cases 2 and 10, which were hopeless when first seen and promptly died, and Case 14, an infant 20 months old, neglected for one week, with a temperature of over 106 degrees when first seen, we have the single instance of one case which died of pneumonia and purulent pleurisy which may, perhaps, have been a result of intubation. Of this we are not at all certain.

Five other cases, besides the ones already mentioned, seen in consultation, presented definite signs of laryngeal involvement, but the stenosis was not sufficiently intense to require intubation.

In conclusion, I may summarize as follows: (1) Intubation is safe if done by an experienced operator. (2) Before the use of anti-toxin 75 per cent. of intubation cases died: now, with the use of anti-toxin 75 per cent. of intubation cases recover. (3) If an operation is necessary, intubation should be preferred. (4) When indications are clear, intubation should be done at once.

1603 *West Grace Street.*

Proceedings of Societies, Etc.

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

The following papers were read before the American Electro-Therapeutic Association, at its meeting at Saratoga, N. Y., September 13-15, 1910:

The Physics of Light Therapy.

Thomas D. Crothers, M. D., Hartford, Conn. This was an exhaustive study of the theories of light, of the many forms and modifications of light and of the diverse ways in which light is utilized in the treatment of disease.

Report on Direct Continuous Currents, Including Electrolysis, Electro-Chemical Surgery, Ionization and all Apparatus Connected Therewith.

Dr. G. Betton Massey, of Philadelphia, said the question of the value of zinc-mercury ions or copper-mercury ions in the treatment of obstinate sinuses had arisen in connection with three cases in his hands during the past year. In one case temporary benefit was shown, but the condition later proved to be malignant. In a case of sinus of the abdominal wall the treatment was moderately effective, but the patient did not persist in the treatment and was later operated upon. Better results were obtained in treating a case of rectal fistula.

Report on Photo-Therapy and Apparatus.

Dr. Charles R. Dickson, of Toronto, Canada, said that further observations served to confirm the theory which was now a well-established fact that light rays do penetrate the skin and underlying tissues and exert their influence, not alone locally, as when concentrated in the treatment of local lesions even to the point of desiccation and cauterization, but were also taken up by the circulation and induced systemic changes which were not equaled by any other physical agent.

Report on Mechanical Vibration Therapy, Exercise Therapy and Apparatus.

Dr. Fred Morse, of Melrose, Mass., said the committee had found nothing to report this year in the way of new designs of apparatus. A slight canvas made among physicians had shown that vibratory apparatus in use five years ago was still in use.

Report on Hydro-Therapy, Thermo-Therapy and Apparatus.

Dr. Francis H. Munroe, of Newark, N. J., referred to the detailed report made by this committee in 1908. Among the late discoveries of importance in the application of heat was "Hyperthermine," a mixture of waxes and rosins. The report also dealt with the use of hot-air currents in certain diseased conditions.

Report on Dietetics.

Dr. Byron S. Price, of New York, read this report, which gave the present-day opinion of authorities in experimental work with regard to foods and their effects when taken into the body, their relation to auto-intoxication, especially having in view the prevention of arteriosclerosis and allied conditions. The report considered in this relation the physical, chemical physicological and pathological conditions of food and of digestion and elimination. Also the scientific explanation why milk, farinaceous and other foods acted unlike in different conditions in farinaceous articles, and in milk, differences, etc.

Report on Standardization of Therapeutic Measures.

Dr. William B. Snow, of New York, said that a survey of the year's progress in physical therapeutics marked a movement toward a more general tendency to the adaptation of rational standardization, away from irrationalism and empiricism. The report discussed the various physical therapeutic measures in detail.

Report of X-Ray Treatment of Spleno-Myeloid and Lymphoid Leukemia, with Blood Findings in Each.

Dr. J. W. Torbett, of Marlin, Texas, reported two cases, one of each variety, in order to emphasize the importance of observing Pancoast's and Stengal's precautions in treating each class of cases. In the first case the patient died sixteen days after taking the first X-ray treatment. It would have been better to treat the arms and legs alone as Pancoast had advised. The second case showed some improvement under X-ray treatment.

Psoriasis.

Dr. Herbert McIntosh, of Boston, read this paper. He reported several cases of psoriasis in which the characteristic eruptions were removed by a combination of physical methods of treatment. In his practice he had usually associated the X-ray with the light treatment, in a desire to hasten the cure, though the X-ray could probably be dispensed with. One should not fail to counsel hygienic living, proper exercise and regulation of the diet, excluding meat as being unfavorable to the progress of the cure.

Report on High Frequency Currents.

Dr. Frederic deKraft, of New York, read this report. He called particular attention to the bipolar utilization of the D'Arsonval current. This could be used in the cavities of the body, for instance, for destroying a papilloma of the bladder; in the naso-pharynx, and also for its sterilizing effect on infected tissues, abscesses, pustular acne, etc.

As a part of this report Dr. Frederic M. Law, of New York, detailed experiments that he had conducted show the bactericidal effect of high frequency currents.

The Treatment of Inflammation Not Complicated or Caused by Infection.

Dr. William B. Snow, of New York, read this paper. The systematic proper application of the static current, in the case of a sprained knee, for instance, at the first administration softened the exudation, relieved the pressure and consequently the pain, relaxed muscular tension, and restored motility and utility to the joint. The best means for relieving local inflammations in which infection did not enter as a factor were the application of the static wave current, the static spark, the static brush discharge or the direct vacuum tube static current, singly or conjointly. In prostatitis and seminal vesiculitis the results had been most striking. Also in dysmenorrhœa and subinvolution and urethral caruncles. Neuritis, herpes zoster, intercostal neuritis, tic douloureux and Bell's palsy had been successfully treated in the same manner. Other conditions treated in this way were anterior poliomyelitis, rheumatoid arthritis, traumatic arthritis and phlebitis.

Electricity in the Treatment of Gout.

Dr. Frederic deKraft, of New York, read this paper. Treatment by drugs had been unsatisfactory. He recommended auto-condensation with sufficient D'Arsonval current to produce perspiration. In his experience the pain and stiffness in the muscles were the last to disappear under the usual mode of treatment. The use of a powerful and thoroughly concentrated resonator effleuve accomplished a most valuable purpose by reason of its deep contracting effect on the tissues and the blood vessels. As improvement took place the static brush discharge might be substituted with benefit. Concentrated light was also of benefit. Diet and gentle exercise should not be neglected.

Some Laboratory Findings in Diseases of Metabolism Which Question That These Are Primarily of Metabolic Origin—The Role of Chronic Intestinal Disorder in the Production of Some of Them.

Dr. Anthony Bassler, of New York, discussed the etiology and symptoms of chronic intestinal putrefaction and its treatment. After emphasizing the importance of regulation of the diet, he mentioned his new method of treating such cases by the instillation of live bacteria, grown from the patient's or others stools, and delivered in billions and trillions into the rectum at intervals of a few days. At the present time he had cases that were being successfully treated with different strains of bacteria.

The Etiology and Treatment of Eczema.

Dr. Herbert F. Pitcher, of Haverhill, Mass., read this paper. He believed that the majority of cases were due to some metabolic or vasomotor disturbance, and the most prominent cause of that disturbance was over-eating. The hygienic and dietetic treatment should be attended to. The internal treatment was symptomatic. The external treatment of acute eczema should be soothing and protective. The blue light should be used in the early stages, later on the X-ray and the static brush discharge. The X-ray was the most important. It was the most valuable remedy for the relief of the intense pruritus which accompanied the disease. It was the last court of appeal in many cases of the chronic form, and it seldom failed if

properly used. In the subacute form and in the vesicular and seborrhœic varieties a very low tube should be used, the treatments lasting from ten to fifteen minutes. Where there was much induration the static brush discharge would hasten towards a more rapid resolution. The effleuve from the high frequency currents or from the vacuum tubes was also beneficial in this type.

Osteo-Arthritis of the Spine.

Dr. Frank E. Peckham, of Providence, R. I., described this condition in detail. He emphasized the importance of finding the focus of the trouble and the cause before beginning treatment. Auto-intoxication was the cause of most such cases. In the treatment of this condition there must be produced elimination of toxic material from the tissues locally and a stimulation of the physiological processes to perform their duties in a more nearly normal manner. This might be accomplished by physio-therapeutic measures, no one modality alone usually giving as much benefit as a combination.

Report of a Case of Splenic Leukemia Successfully Treated by Modern Methods.

Dr. G. W. Strobell, of Rutland, Vt., reported this case. Fowler's solution, Blaud's iron mass and blue mass were used. X-ray treatments were made over the spleen, alternating with chlorine cataphoresis the treatments each day concluding with static insulation. By the end of the fourth week the patient declared she had not felt so well for twenty years. The myelocytes were reduced from 50 to 15 per cent. and the size of the spleen was reduced two-thirds. At the end of the second month the spleen, which had been the size of a man's head, was scarcely to be felt.

Lumbago.

Dr. F. Howard Humphris, of London, England, read this paper. Lumbago should be distinguished from the neurotic spine, from sacro-iliac disease, from cancer of the spine, cancer of the sacro-iliac notch, from the pain from an enlarged prostate, from the backache which ushered in dengue, influenza and other conditions of toxic origin, from Pott's disease and from sacro-iliac relaxation. The ideal treatment was to see that the bowels moved freely with mercury and a saline. Sodium salicylate and sodium citrate of each 20 grains should be given in a glass of hot water every four, five or six hours. The 500-candle power light should be applied for fifteen or twenty minutes, followed by the static wave current for the same length of time.

The Treatment of Chronic Metritis With Descent or Displacement.

Dr. G. Betton Massey, of Philadelphia, read this paper. The form of treatment that he preferred in these cases, when not accompanied by inflammation of the adnexa, was the intra-uterine employment of twenty to sixty milliamperes positive, of the constant current, diffusing copper mercury ions from the amalgamated electrode for four minutes about twice a week, each application being followed by a strongly contracting induction current from a coarse wire secondary.

The Treatment of Cataract by Electricity.

Dr. Samuel J. Harris, of Boston, discussed the history of cataract, the anatomy of the lens, the different varieties of cataract, their etiology and treatment in detail. He reported a number of cases of cataract successfully treated by the direct or galvanic current, a special form of electrode being used over the eye. Mature cataracts were not suitable for this treatment, and he preferred to operate in such cases. He had had experience in a large number of incipient cases, and many of these he had been able to cure. The subject was still in its infancy, but the rapid progress so far made encouraged him to continue investigation along this line.

Oscillatory Desiccation in the Treatment of Accessible Malignant Growths and Minor Surgical Conditions—An Improved Technique Evolved from Fulfuration.

Dr. William L. Clark, of Philadelphia, read this paper, drawing the following conclusions: A current from a static machine of large output with properly adjusted accessories is capable of producing desiccation in morbid tissue. We are able to destroy malignant growths without opening up blood or lymph channels. It is possible to get every gradation of current, from the most attenuated to the most intense, producing simple stimulation,

desiccation or cauterization. It is obviously a styptic intense in effect, and a sterilizing agent in infected wounds; or following an extensive surgical operation where there is a suspicion of infection or malignancy it would appear to be ideal in instantly sealing up blood and lymph channels. In cancer of the breast where the axillary glands are involved a surgical procedure is indicated, but on the first appearance of recurrence it might be used in arresting further recurrence. It might be used in cancer of the cervix to supercede the curette and cautery as a palliative measure. We can apparently accomplish as much in a few seconds by this method in malignant growths as by the X-ray in weeks or months. In disfiguring neoplastic blemishes of the skin we have a potent weapon.

Reactions in Physical Treatments.

Dr. F. H. Morse, of Melrose, Mass., read this paper. Physicians doing this work were often confronted with the statement from their patients that they felt worse the next day after treatment, but that they felt much better the second or third day than before treatment. This disturbance was unquestionably due to a sudden liberation of toxines, the lymphatics becoming overloaded before the emunctories could take care of the extra work suddenly thrown upon them.

Remarks on the Electrical Treatment of Interstitial and Hemorrhagic Fibroids of the Uterus.

Dr. G. Betton Massey, of Philadelphia, read this paper. He said it was our duty to use this method if possible in those patients whom it might save from the risks of an operation. Most important, particularly in the hemorrhagic cases, was the association with the Apostolli treatment proper of the X-ray applied through the abdominal wall. From an experience in a number of cases he was convinced that it was a valuable adjunct in large tumors. Its use filled in the time between the all-important intra-uterine treatments, shortening the total time required for the treatment.

X-Ray and Light in Infections.

Dr. F. C. Tice, of Roanoke, Va., read this paper. He reported a number of cases of hay fever treated with bland oil atomization and insulated low vacuum high frequency tube to each nostril, with prompt cures. Also cases of acute infections treated with the light and X-ray.

Electric Anesthesia in Human Surgery—Electric Sleep by Unipolar and Wireless Currents—Displacement Currents.

Dr. Louise G., Robinovitch, of New York, gave an account of painless amputation of the toes under local anesthesia due solely to passing through the leg a constant current of low amperage and low voltage interrupted 10,000 times per minute. The patient had no uncomfortable sensation.

Dr. Robinovitch described experiments in which she could at will cause strong contraction in specimens of muscle from a frog placed at a distance and without any connection with the instrument. Again by wireless methods animals were caused to continue asleep for several hours and so long as the wireless current was being generated.

A Noteworthy Case of Sciatica.

Dr. J. Willard Travell, of New York, gives the full history of a case of sciatica of nine months' duration, which, during the last three months, received constant and thorough treatment in one of our large hospitals along the usual lines without appreciable improvement. Sedatives were given regularly at night and the patient could not sleep in bed.

Treatment was begun with light, the static wave current and static sparks on the third day after leaving the hospital and all medication was stopped. The patient was able to sleep in bed after the third treatment and was entirely and permanently relieved of all pain after the seventh teatment, treatments being given daily.

Infantile Paralysis.

Dr. Almerin W. Baer, of Chicago, Ill., draws attention to the prevalence of the disease and to the many cases of deformity and paralysis which continue unrelieved in spite of all treatment commonly employed. He finds that contractions and deformity can be relieved and that the muscles will regain their tone and function even after many years by the use of the direct current applied to the spine followed by the static breeze and sparks, treatment be-

ing given three times a week for a number of weeks.

Modern Malpractice in Gynecology.

Dr. Arthur W. Yale, Philadelphia, Pa. This is a plea for greater conservatism in gynecological surgery. A few years ago tubes and ovaries were removed indiscriminately where now removal would not be contemplated nor tolerated, but the conservative movement has not yet gone far enough and such operations should not be attempted in cases which are curable by electrical and physical methods of treatment. That much pelvic disease is readily curable by such means is not well appreciated by many surgeons.

Department Of Analyses, Selections, Etc.

CONDUCTED BY
MARK W. PEYSER, M. D., RICHMOND, VA.
Secretary Richmond Academy of Medicine and Surgery, etc.

The New Ehrlich-Hata or 606 Treatment for Syphilis.

Fisher (*Gaillard's Southern Medicine,* September, 1910). says that the preparation is monochlorate of dioxydiamido-arsenobenzol, and derives its name from Ehrlich and his assistant, Hata, and from the fact that it is the result of a series of 606 different studies in attempting to find a specific for syphilis. The injection was not used unless the Wasserman reaction proved positive, this reaction becoming negative within 24 to 48 hours after injection. Among the subjects employed were adults who had proved more or less refractory to mercurial treatment, adults of many years' infection, and children.

Specific effect was noted on the mucous patches and on all syphilitic exanthematous eruptions, papular or otherwise. Ulcerous and all glandular swellings showed evidences of healing within a few days after injection. Chronic recurring ulcerations disappeared so soon as to occasion surprise.

There was no disturbance of the nervous or vascular systems, of the gastro-intestinal tract, or of the heart. The urine showed no abnormality except that Levi found that arsenic is found for from 12 or 13 days after injection. In some cases there was slight leucocytosis, but no methemoglobin. It was feared that disastrous effects might be produced on the optic nerve but Fehr, after thorough clinical investigation, showed this to be groundless.

The dose of the preparation is from 0.1 to 0.6 grammes, given in the form of an intragluteal injection, and used once only.

M. S. Kakels, New York (*Medical Record,* September 24, 1910), presents a preliminary report on the first two cases of syphilis treated in America by the Ehrlich-Hata preparation, 606.

The first case was in the person of a man 24 years old, who had an extensive gummatous infiltration of the liver; he had the initial one three years before, and gave a positive Wassermann reaction. An injection of three decigrams of 606 was soon followed by signs of betterment, and within two days the large tumor had very markedly decreased in size.

The second case was that of a man, 36 years old, who had suffered from syphilis for three years; the disease was markedly obstinate, responding hardly at all to the usual specific remedies. He was finally practically given up by his physicians, and death was regarded as certain within a short time. Within two days after an injection of three decigrams of 606 a marked improvement was noted, and within one week the ulceration and pustules had almost disappeared; a broken-down gumma on the nose was filled up with healthy granulations; a large and deep ulcer on the malleolus was also filled with healthy granulations, and epidermis was beginning to grow over it; and other subcutaneous gummata were rapidly diminishing in size.

Bearing upon the subject, the following excerpt from an editorial in the same issue of the *Medical Record* is timely. "After November 1st, when the preparation will be on sale in this country, the accounts will, no doubt, be numerous.

"We shall then, perhaps, hear another side, for with the remedy procurable by anybody, it is too much to hope that the precautions which the inventor of this most powerful protoplasmic poison insists upon, will always be observed. Any accidents resulting from the improper use of the remedy cannot in fairness be charged against it any more than can the use of strychnine be condemned because persons have been killed by overdoses. But, as we said in a previ-

ous notice of '606,' we cannot yet tell what the final outcome will be, even when the remedy is properly used. The drug is retained in the tissues and is graduaally taken up by the circulation and distribnted to all parts of the body. Being eminently spirillotropic, so long as any of the specific organisms are present these small amounts are absorbed by them to their destruction, but when the drug, continuously set free in the circulation, is no longer absorbed by the spirochetes, is there not a possibility that it will be found to be generally, even though feebly, protoplasmotropic or neurotropic? This poossibility should inspire caution, and must cause some disquietude as one regards the future of this tremendous experiment. However, the drug may not have any after-effects. If it does not, the discovery will rank high among the wonders of these wonderful times, as marvelous as those of Pasteur, or of Lister, or of Behring; the already honored name of Ehrlich will be still more loudly acclaimed, and the believer in the healing power of drugs will be armed with another weapon in his contest against the hope-killing therapeutic nihilist."

Gonorrheal Vaccine and Anti-Gonococcic Serum Treatment.

Schmidt, of Chicago (*Therapeutic Gazette*, September, 1910), in a paper on this subject, referring especially to joint involvements, says that practically all of his cases are treated locally along the usual lines, while others have the vaccine or sera in addition. He notes that other joints have become involved while patients are under the last two and that they do not give any lasting immunity. Comparatively small doses, 10,000,000 to 50,000,000, repeated at fairly short intervals, four to five days apart, are far more efficacious than larger doses, 75,000,000 to 150.000,000 or more, and given six to seven days apart. It is desirable to commence with minimum doses of vaccine in acute as well as in chronic cases, that there should only be a gradual increase of the dose, and, if the doses are maximum, that the intervals should be far apart. The maximum dose, if given, is probably best in the chronic cases, which are considered metastatic.

In the vast majority of cases of gonorrheal arthritis, occurring during an acute attack of gonorrhea, he is inclined to believe that there is usually a gonococcemia, and the results obtained have been far more satisfactory with vaccine than with serum. But in chronic urethral adnexa cases in which the gonococcus is the only infecting bacterium and in which the joint involvement is possibly only toxemic, serum therapy has been of greater benefit. In chronic gonorrhea complicated with secondary infections of the urinary tract with its adnexa, the joint complications have not improved to any extent with either serum or vaccine or with both. Injections of vaccine corresponding to secondary infection in addition to gonococcic vaccine have not been productive of good results.

The quantity of vaccine at each individual dose varied from 10,000,000 to 100,000,000; serum, from 2 cc. to 10 cc. The intervals between the doses of vaccine and serum varied from three to twelve days.

The total number of cases treated with either or both showed the following results: (a) No improvement, 14.28 per cent. (b) Improvement, 57.16 per cent. (c) Cured, 28.56 per cent.

Pellagra.

Dr. Sambon, a British medical expert, in charge of a commission sent to study pellagra in Italy where the disease is endemic, has announced his belief that he has finally discovered the cause in a species of sand-fly (Simulium).

"It is, of course, impossible to state now fully the results of the expedition, especially as a considerable amount of the material collected will need investigation, but one great step attained is the overthrow of the maize theory which, for over a century has hampered a proper investigation of the disease." The author entirely repudiates the maize theory. Pellagra is not due to the eating of Indian corn, either sound or damaged. He has ascertained in the most definite manner that, like other endemic diseases, pellagra has its own peculiar geographical and topographical distribution. In each one of the affected provinces the disease presents special "stations," or "endemic foci," characterized everywhere by the same topographical, and eclogical conditions. These "stations" have remained the same for at least a century.

According to the author, pellagra is linked to the running stream just as malaria is linked

to the swamp. He has shown that the sand-fly (simulium) explains the epidemiology of pellagra, just as the mosquito (anopheles) explains that of malaria.

Already last winter, before leaving England, the author had suggested the simulium as the probable carrier of the pellagra infection; and now, after a careful survey of the pellagra districts of Italy, he states that he has been able to establish, quite conclusively, the truth of his surmise.—(*Exchange,* in *Gaillard's Southern Medicine,* September, 1910.)

Book Notices.

Hookworm Disease. By GEORGE DOCK, A. M., M. D., Professor of Theory and Practice of Medicine, Medical Department Tulane University, New Orleans, and CHARLES C. BASS, M. D., Instructor of Clinical Microscopy and Clinical Medicine, Tulane University, New Orleans. **Illustrated with 49 special engravings and colored plate.** St. Louis. C. V. Mosby Co. 1910. 8vo. 250 pages. Cloth, $2.50 net.

This is a most timely, practical book, well written and thoroughly illustrated as to the hookworm, its larvae, and the conditions under which it is generally found. The symptomatology is made clear, the points of diagnosis well drawn and treatment well detailed. The historical sketch of the disease is full of interest. As the disease is especially prevalent throughout the South at this time, this book should have a large demand throughout that section of the country. Its authors have carefully reviewed each point, so that the statements may be relied on as facts. The book treats of the etiology, pathology, diagnosis, prognosis, prophylaxis and treatment.

Editorial.

To Make Local Medical Societies Attractive.

From numerous quarters, in and out of Virginia, we hear complaints that it is hard to get even a quorum at meetings—that members show utter indifference, etc. In some instances, it may be that remote distances, bad weather, bad roads, etc., may be the cause. But oftentimes, also, there is nothing specially attractive to draw the members together. Some who may have intended to be present, because of so many previous disappointments, are unwilling to make the sacrifice or effort to be present, because they do not know who else will be in attendance, whether or not there will be a well-prepared paper, or even that the proposed "leader" will be ready. Too often, when the "leader" has a paper, it is a trite compilation from the text-books on a trite subject. Papers could be made much more valuable if, as a rule, they were based on some cases in actual practice; for "experience is the best teacher"; and something in the history of the cases to be reported will often lead to valuable, practical suggestions not in the set phrases of text-books. Presuming the leader is familiar with text-book descriptions, the *study of cases* is far more beneficial and instructive.

Local societies should have a local habitation and a name. The hall of meeting should be accessible, and made attractive, and if the hours of meetings suggest it, and the distance to be covered by most of the members in attendance great, sandwich lunches at least ought to be prepared at the expense of the society—provided the meetings are not too frequent. Wherever practicable, arrangements should be made for a diagnostic laboratory. Libraries of certain standard authorities, tables filled with medical periodicals, etc., should also be provided so that they may be consulted at any time a member wishes to do so, as he is passing by—even out of time for society sessions. Such things may add a dollar or two to the annual cost of membership, but would well repay him.

From time to time, doctors of known ability along different lines of practice should be invited to present papers for discussion, and due announcements made of their coming. Such invitations, especially if a complimentary audience can be provided, would be regarded as a distinction which few would be willing "to turn down." In sparsely settled sections local society meetings bi-monthly are usually often enough, being careful, as far as possible, that the appointed days do not interfere with other local attractions.

Keep the society thoroughly organized by the selection of good, energetic officers, rather than by officers of purely personal reputations. Let only portions of meetings be taken up with business matters, or when the meetings are often enough, let certain of them be set aside mostly for business transactions.

Such a society would soon grow into local prominence and influence. Keep down per-

sonal pedantry and personal jealousies. Let the prevailing spirit be to work for common good and interests.

Medical Society of Virginia.

Programs have been issued for the forty-first annual session of the society to be held at Norfolk October 25-28. The program which numbers fifty-two papers, will contain something of interest for every doctor in attendance. In addition to this, the doctors of Norfolk and vicinity will, in their usual hospitable manner, add much to the social pleasure of those fortunate enough to be able to attend. It is expected that there will be an unusually large gathering of doctors, including members, invited guests, fraternal delegates, etc. This is a personal appeal for each member to attend, urge others to do likewise, and induce worthy non-members to join.

Conference of Hookworm Experts.

Physicians from each of the Southern States, acting under the direction of the Rockefeller Sanitary Commission for the eradication of hookworm disease throughout the South, met in Richmond, Va., September 27-29. Drs. Ennion G. Williams and Allen W. Freeman, both of Richmond, acted as chairman and secretary of the meeting, respectively. The meetings were entirely informal, and consisted in the presentation and discussion of reports from the various States. While Virginia was possibly the first State to organize in the fight against the disease, the others have taken it up with enthusiasm, and the campaign is being conducted in a most satisfactory and scientific manner. Though no definite organization was formed, these doctors will probably hold an informal gathering annually, and have decided to meet together in Nashville, Tenn., next year.

The Augusta County Medical Association,

At its annual meeting held in August, elected the following officers: Dr. M. J. Payne, Staunton, president; Dr. Hunter B. Spencer, Staunton, secretary, and Dr. W. F. Hartman, Swoope, treasurer. This association is in a flourishing condition, and is conducting a library and post-graduate school in connection with the association. Officers of the Post-Graduate School are: Dr. T. M. Parkins, dean; Dr. Kenneth Bradford, recorder, and Dr. John F. Armentrout, treasurer, all of the officers of the school being residents of Staunton.

The American Electro-Therapeutic Association

Held its twentieth annual convention at Saratoga, N. Y., September 13, 14, and 15, 1910, and the folowing officers were chosen for the ensuing year: President, Dr. Frederick deKraft, New York; Vice-Presidents—Drs. F. Howard Humphris, of London, England, and Frank B. Granger, of Boston; Treasurer, Dr. Emil Heuel, New York; Secretary, Dr. J. Willard Travell, New York; Registrar, Dr. Frederick M. Law, New York; Trustees for three years—Drs. R. Dickson, of Toronto, and Thomas D. Crothers, of Hartford, Conn.

An abstract of the several papers presented at the recent meeting is given in this issue under the head of Proceedings of Societies, etc., and much of interest will be found to repay the general practitioner for its reading.

Kansas City Medical Index-Lancet to Be Merged With Medical Herald.

After January 1st the above named journals, long known as two of the foremost, independent medical journals in the West, will be united under the general editorial direction of Dr. Charles Wood Fassett, of St. Joseph, and Dr. S. Grover Burnett, of Kansas City, who will have an able corps of assistants. The combination of the names of these well-known editors is sufficient to guarantee the popularity of the new magazine.

Dr. Mark W. Peyser,

Richmond, Va., who has for the past sixteen years most ably filled the office of secretary of the Richmond Academy of Medicine and Surgery, beginning with this issue, will assume charge of the Department of Analyses, Selections, etc for *The Semi-Monthly*. Dr. Peyser has been prominently identified with medical affairs throughout the State, and is eminently fitted for this position.

The Sarah Leigh Hospital, Norfolk, Va.,

Which is delightfully situated on one of the inland waterways of the city, is now entering upon its sixth year. So successful has been the work at this hospital, that it has been enlarged three times for the accommodation of its patrons. It is abundantly supplied with sun parlors and porches, and is thoroughly up-to-date in all respects. A training school for nurses is run in connection with the hospital.

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Original Communications.

TUBERCULOSIS AND PREGNANCY.*

By L. M. ALLEN, M. D., Winchester, Va.

A sort of traditional view still exists in the minds of the laymen, and even some medical men, that pregnancy may have a beneficial effect upon consumption, and sometimes may even arrest its development. In looking over the literature it is noticed that only a comparatively few text-books deal with the subject to any extent, and even these seem to pass it by lightly as if it were a matter of very little importance; for example, one of the most complete considerations I have been able to find in any of the text-books occupies only a space of about three pages and the same author devotes sixteen pages to the consideration of the various forms of destructive instruments, many of which at the present time are obsolete. To one who has had a fair amount of experience with such cases, it is difficult to understand how such a serious condition can be passed by so briefly. My idea in presenting this paper is to bring this subject more prominently before the general practitioner, and, by adding a little to the already accumulating evidence, point out the fact that, as a rule, the gravid condition exerts a decidedly harmful effect upon tuberculosis when already present, and may probably act as a predisposing cause in those women who are looked upon as receptive candidates.

According to Lancereaux, statistics appear to show that a considerable number of cases of tuberculosis develop solely as a result of pregnancy.

The morbific action of the bacillus is not discredited by this statement which simply means that a certain number of women have become tuberculous who had no family history of the disease, were not of the scrofulous or tuberculosis habit, had never been exposed to the risk of infection, and were living at the time of the infection in a good sanitary environment. Assuming, as every one does, that the bacillus is omni-present, he concludes that pregnancy alone can render a healthy individual "tuberculisable." If pregnancy can thus affect the healthy, how much more likely it would be for the disease to assert itself in a woman who is a fit subject for the disease—in one who is actually consumptive.

The real explanation of the fatality through which pregnancy and parturition lead to phthisis is not entirely understood, but most probably is the result of lowered resisting power. The severe strain to which pregnancy subjects a woman is not so noticeable in the strong healthy individual. But a woman who is frail and weak is apt to be made weaker, and especially is this true where the pregnancies occur in rapid succession. When there is added to all this the labor, with its shock and fatigue, followed often by loss of large quantities of blood the story is told. There seem to be a few cases on record where tuberculosis was already present when conception took place in which the pregnancy has apparently exerted a beneficial effect upon the disease. But it is most probable that the effect has been apparent rather than real. As a rule, signs of phthisis are first noticeable about the fifth month of pregnancy at the time when development of the fetus begins to act as a drain on the maternal system.

The first pregnancy and confinement may not have any bad result, but the second, and still more likely the third, if they occur in rapid succession, is likely to prove serious. In reference to this phase of the subject Dubois makes the following statement, "if a woman threatened with phthisis marries she may bear

*Read before the Shenandoah Valley Medical Society, at Winchester, Va., August 10, 1910.

one accouchement well, a second with difficulty, and a third never. There may be exceptions to this rule, but generally speaking, it is true." My own experience in quite a large number of cases leads me to believe that the most rapid cases of tuberculosis are those following confinement. I recall three such cases in which death occurred on the sixteenth day, the fifth week and the end of the second month, respectively. In two of these the diagnosis was confirmed by autopsy, one of which was acute tuberculous pneumonia, and the other general miliary tuberculosis. Such cases are frequently mistaken for typhoid fever and puerperal sepsis. A diagnosis of both these conditions had been made in the above cases.

The views of some of those who have made tuberculosis a special study may help to confirm what has already been said. Laurason Brown (*Osler's Modern Medicine*), makes the following statement: "The effects of pregnancy and parturition upon pulmonary tuberculosis are to be separated, pregnancy may awaken old quiescent lesions and incite new ones to renewed activity. In advanced cases pregnancy is always serious and when laryngeal lesions are present the mortality is said to be 61 per cent. The effect of parturition, although it lasts but five or six hours, is always to be regarded seriously." Bonney (*Text-Book on Pulmonary Tuberculosis and its Complications*) says that nearly all clinicians agree that the combined effect of pregnancy, the puerperium and lactation constitute a tremendous tax upon the physical energies of the consumptive and directly lower the powers of resistance. In view of the clinical observation as to the increased activity of the tuberculosis process after childbirth with a progressive, subsequent decline, pregnancy has become generally to be regarded as a factor of grave prognostic importance among such patients. Instances of actual improvement in the condition of tuberculous lungs as a result of concurrent pregnancy rarely have been recorded. It is but natural, therefore, that pulmonary invalids should have been instructed as to the advisability of marriage, the imperative avoidance of conception and even the expediency of speedy termination of pregnancy. He continues, however, with the statement that the effect of pregnancy upon the general health and the course of pulmonary involvement may be favorable in a few instances.

Some of the cases which have been under my care recently seem applicable to the subject and a brief report of these may prove interesting.

Mrs. S., aged 26 years; pregnant third time, the first pregnancy was terminated about the fifth month by accident, the second reached full term and the third was interrupted at the thirty-eighth week on account of her condition, which will be explained later. History of the case was as follows: During the fourth or fifth month the patient had contracted cold and began to cough, which continued up to the present time, gradually getting worse; during all this time she had been under the care of a physician who had given her a great deal of medicine and repeatedly told her family that it was only a simple cough that would get well as soon as the confinement was over. She was placed under my care to be attended in her coming confinement, not because of any anxiety concerning her condition. When seen, pulse ranging between 110 and 120, morning temperature 100°, general appearance of the patient bad; examination of the chest showed an advanced lesion in the upper two-thirds of left lung and upper one-third of right. Patient was advised to have pregnancy terminated immediately on account of her condition, which was explained to herself and her family. After a family conference during which time the patient's condition continued worse instead of better, at the end of a week consent was given; pregnancy was terminated by conservative measures, labor lasting twelve hours, terminated in spontaneous birth, but was followed by very severe hemorrhage, which is not unusual in these cases. Patient continued with fever and elevated pulse, but gradually became convalescent from her accouchment and in two weeks was placed on a cot and sent to the country where she was put under the usual treatment for tuberculous patients. At the present time which is just two years the patient has practically recovered; still has evidence in left lung of her condition, but has so far improved that she may be considered now out of danger if she continues the proper methods of living. So far as I can find out this woman had always been healthy, came from a healthy family and had been living under fairly

good surroundings, although in the midst of a large city.

Case No. 2 differs from the above in that she has a bad family history, but had been healthy until after marriage. Her mother died of tuberculosis after fifth confinement and her sister five weeks after her first. This woman has had two children, having been attended by me in each. During the first she did well, but that the pregnancy had been a drain on her vitality was evidenced by the fact that she was unable to nurse the child longer than two months. During the second pregnancy she developed a cough, but no lesion of the lung could be recognized. Notwithstanding this fact, she became so weak and run down that I interrupted the pregnancy at the thirty-eighth week. Following this she was unable to nurse the child at all and was a long time regaining her strength, although she had an easy labor and normal puerperium. In October I was called to see her for severe pain in the chest; examination revealed no definite rales, but a suspicious roughness in the left apex, pulse ranging from 96 to 100, temperature normal and return of the old cough. She was then pregnant about four and one-half months. A note made at the time stated that I feel certain that this woman has tuberculosis and only a short time will elapse before it will be recognizable. In the latter part of November her condition became so serious that the pregnancy was terminated. The child died a few hours after birth on account of prematurity. The woman, as usual, had a slow convalescence and was advised by me against further conception.

Case No. 3, Mrs. C., seen in consultation with Dr. Dixon; pregnancy six and one-half months advanced. Apices of both lungs involved, evening temperature 99½ to 100, pulse 99 to 100, weak and losing ground, although she had been under treatment for some time, having been given fresh air and forced feeding. The immediate termination of pregnancy was advised and accepted. Labor was induced as above. On February 4, 1907, pains began on the evening of the 5th and labor was terminated spontaneously on the morning of the 6th. The child was alive, but on account of prematurity died in a few hours. Patient was sent to Blue Ride Summit and when last heard from was doing well, and I might add that at the present time, she is looked upon as cured.

Case No. 4 came to me for treatment October 1, 1908, giving the following history; mother died of heart disease, father of asthma, most probably tuberculous, no brothers or sisters; has three children, six, four and two years old, respectively. At the present time five and one-half to six months pregnant, has had a cough for several months and has been losing weight. Examination of chest reveals lesions in the apices of both lungs. I advised that the pregnancy be terminated at once, but on account of her religion the advice was refused. Seen again Novemebr 12th rapid progress of disease was very apparent—patient having been in bed several days on account of weakness. Pulse 108, temperature 103, fever rises very high every evening. Still refuses to have pregnancy terminated. Note at the time this paper was written, states that she will most probably succumb rapidly following her confinement. My advice not being accepted, I refused to have anything further to do with the case, but found out later she was confined on December 1st, labor having been brought on most probably by the high temperature. Death followed on the third day.

A number of similar cases have been treated by me but on account of lack of time I will not take up any further consideration.

While the title of this paper is "Pregnancy and Tuberculosis" I do not feel that the subject would be complete without some reference to the offspring of tuberculous parents. In taking up this subject we must consider the possibility of the transmission of bacteria through the placenta. In a large number of tuberculous women who are confined each year Hauser was able to collect only eighteen who have given birth to children in whom the placenta gave evidence of the disease. Birch, Hishfeld, Schmorl, Lehmann and others have described tuberculosis of the fetal portion of the placenta and occasionally cases of congenital tuberculosis. In Nothinagel's *Encyclopedia of Practical Medicine* the author quotes from the most reliable pathologists, including Virchow, whose experience extended over decades and who never saw a genuine case of congenital tuberculosis; or they designate such a case as a rarity which has only occurred in conjunction with

uterine tuberculosis in the mother. He continues with the assertion that if we consider the two questions, first, whether placental transmission is possible; and, second, whether it occurs so frequently as to constitute prineipal cause of dissemination in tuberculosis, we must answer the former uneonditionally in the affirmative, but the latter absolutely in the negative.

Further argument against the frequency of of placental transmission of tubercular bacilli is offered by the pathological findings as presented by the same author. Thus aceording to the law of localization we see the first and most advanced changes at the plaee where tubercular bacilli enter the organism—that is, in the nearest lymph glands, accordingly in intra-uterine transmission, the liver being the inlet for the blood, infected by the maternal circulation, should show the first and most important changes. As a matter of faet, it has been found that in all ineontestable congenital eases, the liver and abdominal viscera are prineipally involved, whereas, in the preponderating majority of tuberculous ehildren it is not the liver, but, just as in adults, the lungs and the bronehial glands whieh are chiefly affected. Aceording to Biedert's compilation in 1,346 bodies of tubereulous children the organs were affected in the following ratio, the lungs in 79.6 per cent., intestine 31.6 per eent., the lymph glands 88 per cent., and the peritoneum in 18.3 per cent.

Concerning the effect upon the child at birth a study of the literature reveals rather eonflieting statements. Thus in one text-book the statement is made that the ehildren of tuberculous mothers are usually well developed; while in another, whieh is equally well known, it is stated that the offspring of these women are usually delicate, undersized, and after developing the so-called strumous diathesis have a tendeney to fall a prey to the disease. My own experience is that they are about like those of the average.

Leaving aside the eondition of the child at birth we will review briefly the effect of disease upon its early life. The researches of Von Behring and Calmette are gradually turning the trend of modern thought toward the interpretation of the term predisposiion as a susceptibility of the patients dependant upon antecedent infeetion; and this is further strengthened by Cornet, who states that the extent to which hereditary disposition is responsible for development of the disease can never be determined until the effect of infeetion is completely eliminated. It is a gradually growing belief among tuberculous specialists of the present day that ehildren born of the tuberculous parents have established a eertain amount of immunity from the disease; and provided they be removed immediately after birth from the source of infection and placed under the best conditions for growth and development, in future will probably be less liable to diseae than others. This, however, is still to be proved. And while I personally believe that as a result of close contact of ehild and parent, infection in early life is a very important factor in the cause of tuberculosis appearing in later life; still in the light of our present knowledge we are forced to believe that a child of tuberculous parents eomes into the world with a disposition for the disease.

Treatment for such eases: If a woman has a bad family history, is not robust and strong, but what may be considered delicate, she should be advised against marriage. If she is already tubereulous, marriage should be legally prohibited; if she becomes tuberculous after marriage she should be warned against the occurrence of coneeption. If conception does occur, she should be watched very carefully, and in the presence of the slightest aetivity of the disease the pregnancy should be terminated at once as earefully and conservatively as possible and the woman put under the most favorable conditions for health. If the pregnancy should continue to full term the mother should not be allowed to nurse the ehild nor should she take any part in earing for it, as it is undoubtedly these two drains on the maternal system that ofttimes cause the fatal termination and I may add that in the interest of the child it should be removed entirely from the mother's surroundings. Personally, I disagree with those who, for the sake of the offspring, would allow the pregnaney to eontinue while an active lesion is present in the lung. I would not hesitate a single moment to interrupt a pregnancy at any time after the disease was definitely proven and in the presence of any marked activity. Reeently, in conversation with a lady

who had been a patient of Dr. Trudeau at Saranac Lake she remarked that one of the most pathetic features of the sanitarium was the number of women who are under treatment and are grieving for their young babies at home. That, in itself, it seems, would be ample proof of what has already been said. In the case of the woman who has had tuberculosis and recovers completely I will quote from the advice given one of my patients by Dr. Trudeau: She might be allowed to marry after three years of good health, but she must be watched carefully. As long as good health is retained she may be allowed to give birth every three years.

Conclusions.—That a woman, although she has a good family history, may, because of lowered resisting power, the result of pregnancy and confinement, especially if these be repeated in rapid succession be more susceptible to tuberculous infection. That if she has the disposition the disease is more apt to come on in pregnancy or after confinement than at other times; if she already has the disease, although it be only in mild form, it will be aggravated by pregnancy and labor. That marriage should be discouraged in those who are tuberculous, but if this advice is not followed and pregnancy ensues it should be interrupted at any time in the presence of marked activity of the disease. If pregnancy continues to full term under such conditions it will be an advantage to both mother and child that it be removed from it's mother's surrounding and kept away continuously, until she is cured.

THE VALUE OF ANIMAL EXPERIMENTATION WITH REFERENCE TO OPERATIVE TECHNIC—EXHIBITION OF SPECIMENS.*

By C. C. COLEMAN M. D., Richmond, Va.

Among the many factors responsible for the progress of modern surgery and medicine, animal experimentation is entitled to a place of prominence; and its achievements in the past serve only to demonstrate its greater potential value in the future. The practical importance of experimentation on lower animals for the purpose of establishing scientific truths, admits of no argument when one takes into consideration the many contributions to the sciences of medicine and surgery that have come through this field. The right of man to use animals for scientific purposes, when viewed in a broad way, is distinctly humanitarian, and the results that have been achieved in the prevention and cure of disease fully justify its use. Fortunately for us, the community has taken an enlightened view of our work and we have not been subjected to criticism and denunciation at the hands of sincere, but misguided, opponents of vivisection. The narrow view taken by some countries and sections has greatly hampered this work and has proved a serious obstacle to scientific progress. We have always been glad to have our work inspected by intelligent laymen, for we believe in this way, better than any other, the public can appreciate our efforts to prevent animals from suffering unnecessary pain in the performance of surgical operations.

Realizing its importance, we have, during the present year engaged in experimental work upon dogs for the purpose of developing and perfecting surgical technic, and I shall call your attention briefly to some phases of this work, the methods employed, and the results we have obtained. The work has been largely done by Dr. E. H. Terrell and myself under the direction of Dr. Horsley, and the general management of the laboratory, technic, etc., are the results of his previous experience along similar lines. We have restricted the work to operative surgery upon dogs, and while it has been possible to observe and confirm various physiologic laws, no attempt has been made either to investigate or elaborate this field, the principal aim being to perfect operative technic. The enormous value of such work in the training of students of surgery must be at once apparent and should need no discussion.

The usual method of instructing by operations upon the cadaver where asepsis is not required and where careful dissections are not necessary to avoid hemorrhage must certainly fall short of even a good imitation of the real conditions which we meet in an operating room. At least this has been my own personal experience. The success of surgical operations and the value of particular methods are generally established by results, and work upon the cadaver does not admit of such a test. In other

*Read before the Richmond Academy of Medicine and Surgery, October 11, 1910.

words, it is the difference between operations upon living and dead tissue. Dogs will probably stand the trauma and shock incident to surgical operations better in many instances than the human subject, but any gross violation of surgical principles or failure of technic will be followed by unfavorable results with almost as much certainty as in man.

In the beginning of our work we employed

Fig 1. Photograph of specimen of gastro-enterostomy removed six weeks after operation. Mucosa of stomach plainly shown Note communication between stomach and jejunum in upper part of photograph.

chloroform as an anesthetic, but the mortality from this was so high that we soon changed to ether, sometimes preceded by morphine and atropine, and this has made an ideal anesthetic. Some care is necessary to prevent an overdose in the beginning of anesthesia, and the temptation to push the anesthetic to shorten the period of struggling unless guarded against may be fatal.

We have undertaken, as far as possible, to adopt the strict operating room technic and the operations have been conducted with due regard to asepsis, employing bichloride solutions for disinfection when necessary. The usual preparation of the field of operation has been employed, and the wound in abdominal work sutured in layers with fine silk. The wound is sealed after operation by cotton and collodion. Silk has also been the material for intestinal work and ligatures for arteries and veins. While our work has included other operations in the pleural cavity and neck it has been confined principally to the abdominal cavity and the operations were done in series—that is a number of the same operations were done consecutively in order that the technic could be better perfected.

The first specimen I will show you is that of a gastro-enterostomy, which demonstrates very well the firm union and the perfect unobstructed communication between the stomach and the jejunum. (Figs. 1 and 2.) The operation of gastro-enterostomy was originated by Wölfler and its general indications are, as you know (1) relief of pyloric obstruction; (2) to relieve the irritation due to passage of stomach contents over an ulcer; (3) the drainage of a distorted stomach. It has passed through several stages in its evolution towards a perfect communication between the stomach and the intestine, and at the present time is without serious objection. In Wölfler's operation the pre-colic method was employed—that is, the small intestine was sutured to the anterior wall of the stomach, and the loop of intestine between the pylorus and the anastomosis was much longer than is used at present. This method was far from satisfactory, inasmuch as it failed to give drainage to the stomach because the opening in the stomach was too far above the greater curvature which is the most dependent portion of the stomach. Another objection to this operation was the long loop of intestine between the pylorus and the anastomosis which allowed the intestinal contents to flow back into the stomach, thus establishing a vicious circle. The method demonstrated by the specimen before you is a modification of the Moynihan-Mayo method and aims to secure an anastomosis between the stomach at its

greater curvature close to the pyloric end and the jejunum at a point close to the duodenum.

This is the operation in general use at present and is accomplished by an incision thro the abdominal wall to the right of the median line, beginning at the costal margin and e tending downward a sufficient distance to permit of accurate and reasonably rapid work.

Fig. 2. Photograph of posterior view of same specimen. Note above jejunum, and below the fatty meso-colon overlying posterior wall of stomach.

The lesser peritoneal cavity is opened by an incision through the meso-colon and the stomach raised and grasped with rubber covered clamps. The stomach is clamped in such a way as to allow the handle of the clamps when fastened to point toward the right shoulder. A loop of intestine is selected at a point close to the duodenum and grasped with clamps in a similar manner. The clamps should then lie parallel, and the site of the proposed anastomosis in the stomach is in apposition to that in the intestine. The stomach and intestines are protected around the field of operation by gauze wrung out of hot salt solution. Beginning about three-fourths of an inch from the point where the incision is to be made, the serous surfaces of the stomach and intestine are united by a continuous suture of silk with the end left long. A round curved needle is used for this purpose and the suture continued for about two and a half inches and tied. The needle does not penetrate the mucous membrane of the stomach. When this suture line has been completed the end is cut short and an incision made in the stomach. The mucous membrane is trimmed away to prevent the formation of a diaphragm and the intestine is incised opposite to this point and its mucous membrane treated in the same manner. The mucosa of the stomach and intestine within the grasp of the clamps is disinfected with sponges wrung out of bichloride. Beginning at one angle of the incision with a curved needle and large silk or chromic catgut sutures the edge of the incision in the stomach is united to that of the intestine, the needle penetrating all the coats of both. This suture is held firmly by an assistant while being placed, and is continued around the circumference of the opening and tied to the first end. The clamps are then removed to see if there is any bleeding. In the absence of hemorrhage, another continuous suture is begun where the first suture which united serous surfaces ended. When this final suture is completed and its end tied to the long end of the first suture, the anastomosis is completely buried in the serous surface. The first specimen is taken from a dog which died one week after operation, death being due to a large piece of rough bone which had ulcerated through the duodenum. This specimen shows a perfect anastomosis with firm union and no fault of technic. The second specimen (Figs. 1 and 2,) was removed about six weeks after operation and was taken from a dog whose intestines had been resected twice before.

The specimen in the smaller jar shows an end-to-end intestinal anastomosis with no constriction. The dog is especially adapted to intestinal work and I would like to describe the method used by us in resection of the intestine. Many different kinds of operations have

been devised and a number of different appliances and sutures employed. While each of the several methods in use to-day have enthusiastic advocates, the one described by Dr. J. Shelton Horsley in *Surgery, Gyn. and Obstetrics,* March 1909, seems to fulfill every indication and has many practical advantages in the way of simplicity and securing perfect coaptation. This is the method we have uniformly employed in our work and the result is demonstrated by the specimen before you. The value of experimental work upon dogs is no where better shown than in the operation for resection of the intestine. However carefully and clearly this operation may be described with the aid of cuts and illustrations it is impossible to teach a student how to do the operation unless he undertakes it himself. Requiring, as it does, careful suturing with the greatest attention to technical detail the operation has to be done repeatedly in order to develop accuracy and reasonable dexterity. Frequently the cases requiring it are of an emergency type, where immediate surgical intervention is imperative and where hospital facilities are not available nor can a competent surgeon be secured. A man who practices such work upon dogs with a method requiring no complex appliances, is far better equipped for a successful performance of the operation than the man who has not engaged in such work. The method which we have followed brings together the serous surfaces in perfect contact, includes all coats of the intestine, and can be done by a surgeon of average skill without the use of any complicated mechanical device.

We have not experimented with the Murphy button in our series of cases, because we believe that it has some objections, and certainly no advantages, over the method we employ. The objections to the Murphy button, as we believe them to exist, may be briefly summed up as follows: First, it is best always in surgical work to employ the simplest appliance and instruments whenever possible; second, it is a union by means of a large foreign body which may either be discharged too soon or which may ulcerate through the intestine or may produce obstruction. At any rate, there is always some anxiety until the button is safely discharged from the bowel; third, it decreases the lumen of the intestine more than the end-to-end anastomosis by a continuous suture when the latter is properly placed.

The method we have used may be briefly described as follows: After the bowel has been clamped or tied around with gauze strips to prevent the contents of the bowel from coming within the field of operation, the mesentery is divided and the mesenteric border clamped and ligated with silk. The mesenteric borders are placed side by side and not in direct apposition. The bowel is then cut across and the ends are disinfected with gauze sponges wrung out of bichloride solution. They are held parallel and close together to resemble the two chambers of a double barrel shotgun. Tenacula forceps may be used to facilitate the work, but we have not found them necessary. A straight intestinal needle with a fine suture starts from the mucous membrane and transfixes the wall of each end of the intestine about one-fourth of its circumference from the mesenteric border. The needle is then brought back in a reversed direction and the suture tied, making a mattress suture with the knot in the mucous membrane. An artery clamp is placed on the short end of the suture and the suture continued in a similar manner across the mesenteric border for one-third of the circumference of the bowel. The needle is then brought on to the serous surface and the suture is continued, as a right angle suture, accomplishing the same results as the mattress suture described above, the only difference being in the method of application. This suture penetrates all the coats of the intestine and is continued until the point is reached where the original knot was tied. Here the stitch is terminated by tying it to the short end that was left after making the first knot.

It is important that the thread be held firmly while the suture is being applied, at the same time guarding against crowding the intestinal wall upon the suture too tightly. When the suture is completed, the knot is drawn into the bowel, and should there be any drainage along the suture it will be toward the lumen of the intestine. We believe this method is satisfactory in every respect and possesses all the advantages we claim for it. By performing a number of these operations after the methods outlined above and perfecting the technic where it seemed faulty

we are convinced that we can approach with greater confidence similar operations upon the human subject and we feel that such confidence amply repays for the time and energy expended upon work that is productive of so much good, both to patients and surgeons.

303 *West Grace Street.*

THE MECHANISM OF SPEECH AND SOME SPEECH DEFECTS.*

By E. BOSWORTH McCREADY, M. D., Pittsburg, Pa.

According to Max Müller, "To speak is to think aloud, and to think is to speak low." Thought in its higher functions exists only through expression by means of language. Language is that process by which thought is conveyed. It may be by writing, by signs or gestures, by inarticulate cries, by music, even by painting and sculpture. The process with which we are concerned, however, articulate speech, is the one usual to normal human beings.

Speech is "a system of articulate words adopted by convention to represent outwardly the internal process of thinking." It is chiefly through the faculty of speech that man assumes his superiority over other animals. The mechanism of speech consists of three distinct factors: First the cerebral; second, the vocal, and, third, the articulatory.

We have already considered the mental processes necessary to the reproduction of sounds. We have shown that not only is a perfect ear necessary, but also a perfect auditory center and perfect association pathways between it and the other speech centers.

The vocalizing apparatus is chiefly concerned with the production of voice. "In speaking or singing we use a current of air to arouse vibrations in the vocal cavities. These vibrations are waves of condensation and rarefaction, or variations in the density of the air." Three elements enter into the mechanism of the production of voice—the column of breath, the vocal bands and the vocal cavities.

The act of ordinary passive breathing for the purpose of aerating the blood is involuntary—that is, it occurs without the direct intervention of will, though we can inhibit it for a time or increase or decrease its rate, make it more deep or more shallow. Breathing for the purpose of voice production is, to a greater extent, voluntary, under the control of the will. In either case the base of the column of breath is the diaphragm, bounded by the chest walls laterally and having its apex in the upper respiratory region. In ordinary inspiration the diaphragm contracts and descends, increasing the vertical diameter of the thorax. The antero-posterior and transverse diameters are increased by the elevation and eversion of all ribs except the upper two. Expiration is largely passive, being brought about by the influence of gravity and the elastic recoil of the thorax and by the relaxation of the diaphragm, which allows it to be forced up again by the pressure of the abdominal organs. In forced inspiration a larger number of muscles is called into play than in the passive type, increasing the capacity of the thorax. Forced expiration is assisted by the action of the abdominal muscles, which by pressure upon the organs, push up the diaphragm.

In respiration for use in voice production, inspiration is either passive or forced, dependent upon the volume of breath necessary. Expiration alone is used for voice; so it is necessary to judge accurately before the inspiratory act the amount of breath to be used for voice during the expiratory act. Expiration for this purpose may be either passive or forced. In either case it must, for economy of effort, be controlled by the will.

The vocal bands are two shelves of muscular tissue placed across the lumen of the larynx, commonly known as the Adam's Apple. These bands are used in phonation exclusively; during ordinary inspiration they are drawn apart so as to offer as little obstruction to the breath as possible. During phonation they open and shut by compression, emitting a series of puffs of air. The vocal cavities which consist of the upper trachea, upper larynx, mouth and nose, are adjusted to certain tones for each vowel. The puffs of breath emitted from the larynx through the vocal cords strike these cavities and bring forth the proper tone.

For illustration, I will ask you to give voice to the following vowel sounds and to note the difference in adjustment of the mouth for each sound:

ee in feet	aw in awe
a in ate	o in old
ah in father	oo in boot

*Read before the Kindergarten College, Pittsburg, Pa., January 27, 1910.

You will notice that the cavity becomes progressively longer from ee to oo. A description of all the adjustments of the various vocal cavities would be impossible. They vary not only in different individuals, but also in the same individual at different times, and even in the production of a single vowel. Vowel sounds are the basic elements of speech; voice modified only by changes in the adjustment of the vocal cavities.

The organs concerned in the mechanism of articulation are the tongue, the palate, the lips, the teeth and the pharynx. The word, "articulate," comes from the Latin, "articulatus," meaning jointed. Articulation, therefore, consists in bringing the organs named above into apposition, so as to form a joint, a hinge, which will modify voice or breath into various sounds called consonants. For some consonants, as will be seen later, voice is not necessary, only a very small amount of breath is used—that contained in the cavity of the mouth. The consonant sounds are divided, first, as to whether voice is necessary to their production; and, second, in regard to the positions of the articulatory organs.

The sounds p and wh are labials—that is, they are made by drawing the lips apart, and are voiceless, only the breath which is in the mouth being used. B is also a labial, but is voiced. M, another labial, is voiced, as is also W. M, however, is voiced, not through the mouth, but through the nose. F is made by placing the lower lip in contact with the edge of the upper teeth and is voiceless. V is made in the same way but with voice. Th' and Th", the first, voiceless and the second voiced, are made by placing the tongue at the roots of the upper teeth. Sh and T are voiceless, and are made by the tip of the tongue in contact with the front part of the palate; Zh, D, L, R are made in the same way but are voiced. N is another linguo-palatal, but is voiced through the nose. In the posterior linguo-palatals, the back part of the tongue rises to touch the back part of the hard palate. K and H are voiceless; G and J are voiced through the mouth, and Ng through the nose. In the English language there are but three nasal sounds—M, N and Ng; in all others the nasal passages are cut off from the mouth by the raising of the soft palate and uvula.

When the soft palate fails to rise nasal speech will result. This condition may be caused by deficient nervous or muscular control, by paralysis (usually occurring after diphtheria), or by adenoids or enlarged tonsils. In adenoids, the interference is through mechanical obstruction. After the removal of adenoids, nasal speech may persist until control of the soft palate is regained.

Adenoids may cause defective speech in another way. If they are large enough to completely or almost completely fill up the post-nasal space, very little or no air will be able to make its way out through the nose; consequently, M will become the voiced oral B, and N the voiced oral D.

Lisping is a variety of defective speech in which one sound is substituted for another on account of faulty habits of placing the tongue. It occurs most often in the attempt to pronounce S and Z. In the first, the voiceless Th is substituted, and in the second the voiced Th. It occurs very often in children with defects of vision or hearing, in nervous children and in those who are careless in their habits. Children who have lost one or more of the upper front teeth will form the habit. As soon as the child becomes accustomed to hearing himself lisp he becomes unable to judge whether he is making the proper sound or not. He atempts to make the sound as he is directed, but he has memories of faulty tongue movements only to draw upon; consequently, his motor speech center will still command the habitual faulty movement. His auditory word center will aid in the delusion on account of having nothing but faulty word memories for comparison. It is, therefore, necessary not only to direct the proper placing of the tongue, but also to substitute correct memories for incorrect ones, by constant drill. This is a matter requiring, at times, a great deal of time and patience.

Stammering and stuttering are two terms used to describe the same condition. Stammering is, more properly, simply defective utterance, such as one uses in pronouncing a word with which one is unfamiliar, or in a state of emotion, and should really include all defects of speech. I have defined stuttering as a condition in which, through lack of co-ordination of the nervous mechanism controll-

ing the organs of speech, which may include either excessive or deficient innervation, there is a difficulty in enunciation which may comprise either spasmodic effort without articulate sound or frequent repetition of the same articulate sound before the utterance of the one following. With it may be associated compensatory spasm of muscles not directly involved in speech.

This definition does not differ materially from those of other observers, and, like their definitions it does not explain the underlying cause. I have lately come to the conclusion that while stuttering is more likely to occ in those with a nervous temperament, or those who are subject to irritation from the nose and throat, or who have faulty breathing habits, and who, further, are subjected to the exciting causes—such as acute disease, mental shock or irritation—that there is a cause which goes back further than any of these. I believe that in those who stutter the tendency to do so is present from birth and that it is dependent upon a biological variation or defect of development in one of the higher cerebral centers or association tracts. The stutterer has certain characteristics which might lead one to suspect that he sometimes stutters, even if observed at a time when he seems to have no difficulty in speaking. For instance, it will be noticed that there is a certain laxness about the movements of the lips and tongue, that he does not articulate with the same precision as does a person with normal speech. This sometimes amounts to actual lisping. In using the nasal indicator, I have noticed that the soft palate is also included in this lack of control. For instance, in the nasals M, N and Ng the soft palate will often rise so as to cut off the oral cavity from the nose, while in some of the other sounds there is an escape of air through the nose. The faulty breathing of these children is easily apparent even to the unpracticed observer. Their respirations are jerky and uneven, and they will constantly attempt to speak with the lungs only partially filled. I believe that this faulty manner of breathing is more often the result of the stuttering than the cause, as is claimed by many.

The monotonous voice is another characteristic. A person with normal speech slides his voice up and down the scale, while stutterers speak in a monotone.

The first requisite for successful treatment is the co-operation of the patient. These children are usually aware of their own deficiency and when they find one is trying to help them it is very easy to gain their confidence. Scolding and nagging are certain to result in nothing but harm, but much can be accomplished through encouragement and judicious praise. Before beginning treatment, a thorough physical examination should be made, and any defects found should be, if possible, corrected. The child's manner of living, its habits, associates, etc., should be inquired into, and advice given towards securing for it the best possible hygienic conditions. A complete analysis of all the factors which together make up abnormal speech in the particular individual under treatment should then be made.

Breath being the basis of speech, it is necessary that the child be first taught to breathe properly, and never to attempt to speak with empty lungs. Instruction and drill in the proper formation of the different sounds should be given. This has in some cases, been sufficient to effect a cure, but the process is long and tedious and the result uncertain.

I have referred above to the fact that stutterers speak in a monotone. It is necessary to interject into the stutterer's voice an exaggerated inflection to cause him to speak musically. After the exaggerated inflection becomes habitual he may be allowed to use only that amount usual in ordinary conversation. Snapping the fingers, waving the arms, beating time, lengthening the vowels, as well as many other methods of the charlatan are only makeshifts; and while they may relieve, the relief is only temporary, and very often the cure makes the sufferer appear more ridiculous than does the disease.

242 *South Highland Avenue.*

A BRIEF HOME-OFFICE VIEW OF LIFE INSURANCE EXAMINATIONS.*

By JOHN W. CARROLL, M. D., Lynchburg, Va.
Medical Director of the American National Life Insurance Company.

The life and success of a life insurance company depend very largely upon the ability and integrity of the physicians selected as examiners in the field. In every life insurance company

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the most careful scrutiny is given the history and ability of each man appointed to such position. His place of graduation, his service, hospital or otherwise, his general reputation morally and professionally are most fully investigated before final appointment is made. In this selection as medical director of the American National Life Insurance Company, of this city, I find a great many physicians who are utterly unable to do this work on account of their lack of preliminary education, and I believe that this is one of the greatest advantages that a physician can have, whether he is called to the line of life insurance work in particular or what other work he may elect to do. Life insurance examinations are essentially of two parts. First, the declarations made to the examiner by the applicant; and, secondly, report made of the examination by the physician himself. In the declarations made to the examiner it is absolutely necessary that the physician should impress upon the applicant the necessity of in each case giving a correct answer, as an incorrect answer, given intentionally or unintentionally, is nearly certain to be afterwards discovered, and upon such discovery it is the company's option to cancel a policy issued on this life, provided the misstatement is material.

The usual procedure in an insurance office is to consider each individual case on its merits, and to rate him according to a class to which such individual may belong in relation to his mortality. Probably it will be at this point proper to explain the exact meaning of mortality as used in this paper. The life of each individual, viewed separately, is a most uncertain quantity; however, it has been found in life insurance work that with a certain definite number of individuals at a certain age a certain specified number will die during each year. As for example, given 100,000 healthy citizens of this country at age of 30 it has been found that 821 will die during the ensuing year. This may be considered a normal number of deaths, or 100 per cent. mortality at this age (Dr. Symonds). Of course, the number will increase progressively with increase in age until finally of all those left the last will die. It is expected that without medical selection the percentage of mortality will be as given above. However, it has been found that these results are not correct after medical selection, and that during the first year following such selection by life insurance companies the mortality will reach only 50 per cent. of the expected. During the second year about 68 per cent.; during the third year about 85 per cent., and during the fourth year about 95 per cent., until mortality reaches 100 per cent. Each risk accepted by a life insurance company is given a certain expected mortality as far as we may be able to judge, and is grouped accordingly as the mortality may be expected to reach 100 per cent., or to exceed 100 per cent.

In considering the declarations made by an applicant to the examiner in an insurance office there are four questions that occupy undue prominence as compared with the remainder. First of importance is the history of the applicant in regard to the *use of alcoholic liquors.* This is *the* most difficult question to which to secure a proper and intelligent reply. No man considers himself an excessive alcoholic when applying for life insurance, and it is necessary that a most painstaking investigation should be made in each case where any doubt exists. To merely answer "an occasional drink" does not convey the information that is *desired* and *must* be secured before an applicant can be properly placed in regard to his mortality. It is extremely rare in life insurance work that any definite information is given to the company by an *examiner* in regard to the applicant's use of alcohol, which may be due to friendship for the applicant or simply due to carelessness in not asking questions that may be searching enough to secure such answers. By far the most definite reports on alcoholism are secured through commercial insurance reports.

The next block of importance in life insurance declarations is the *family history* of the applicant; and by this I do not merely mean the taint of heredity from tuberculosis, but in addition many other diseases must be considered therein. A short-lived family history will modify as much as 50 per cent. the expected mortality of an applicant. The mere fact that one parent dies below 70 years has been found in large groups of cases to give about 5 per cent. extra mortality.

In addition to this there may be an excessive

history of kidney disease, or disease of the respiratory system which may each modify the chance of longevity in the applicant.

Another group of great importance is the *exposure of the applicant to disease,* either personally or by environment. It can be readily understood that a case exposed to tubercular infection is not a desirable insurance risk. In addition to this any history of disease suffered by the applicant may render an applicant undesirable, as, for example, a history of appendicitis without operation bars a man from insurance in many companies for at least three years, and some for as long a period as five years. An attack of kidney colic in an elderly applicant is extremely grave. In a young man, say under the age of 30, it does not apparently materially increase the mortality. In all cases where there is an indefinite history of any disease it is the examiner's duty to carefully inquire into this, and secure such information as may lead to a probable diagnosis, if such has not been made by a physician.

To proceed now to the examination proper it should hardly be necessary to add that an examiner is paid a fee for the work done, and is trusted by the insurance company to do his work in a painstaking and careful manner. This may seem to you who do your duty thoroughly an unnecessary sentence, but I have found examiners who made urinalysis (?) when the applicant had never passed any urine for this purpose at all. Another important question in the examination, as a part of the physician's work, is the question of identification. The examiner should first assure himself that he is examining the man who is applying for insurance, as many cases of attempted fraud, or actual fraud, have occurred in this manner, such as one brother substituting for another, or even at times an entire stranger substituting for an applicant. Further, the examiner should give any personal marks of identification that may serve the company where doubt of the death of an applicant may arise; for example, birth marks, tattoo marks, etc. This question is often improperly answered, and we have had such replies as "peculiar gait, hesitation in speech," etc. Of course, the absurdity is obvious.

The second group usually is that of the measurements of the applicant. This is extremely important for the applicant's age should be estimated and given by the examiner, as the applicant may inadvertently or purposely misstate his age and secure a premium lower than that to which his proper age entitles him. His height and girth of abdomen, and chest inflated and deflated, must all be taken by the examiner personally. For practical purposes all appllicants may be divided into normal weights, under-weights and over-weights, and a table for such weights has been prepared and each individual is compared therewith and properly placed before acceptance. The class of under-weights—and I mean by this a man who is 20 per cent. below the normal weight for the individual at his age and height—shows an excessive mortality from disease of the respiratory system, especially tuberculosis. In this class it especially seems that a history of indigestion with under-weight is very unfavorable, as many of these cases are probably in the incipient stage of this disease. In the over-weights the mortality is even greater, as a class, than in the under-weights. The supposition entertained for many years that "weight was a bank from which nature might check" can no longer be believed in the light of investigations made by life insurance companies. It is a drain on the system, whether due to muscle or fat, and the mortality of this group increases very markedly with age. The younger entrants of this class are practically normal risks, and I mean by younger risks those under 29 years of age. Above 29 to 42 years of age the mortality increases until in extreme over-weights it may be as high as 150 per cent. to 175 per cent. Especially serious is an increase of the girth of the abdomen over the measurements of the chest expanded. Another condition affecting these risks in a more unfavorable manner is a history of kidney colic or gall-stones. Of great significance is the fact that no over-weight ever dies from old age. Another fact contrary to the accepted theory of the laity is the fact that under-weights die from pneumonia in the proportion of 3 to 1.

Of supreme importance is the examination of *the lungs* and heart, particularly the former. In all life insurance mortality investigations death from tuberculosis is one of the highest causes of mortality, and the least abnormality in the lungs, whether believed by the examiner

to be of importance or not, should be reported to the home office for their decision. It cannot be too strongly urged that a proper examination of the heart and lungs can only be made through a very thin undershirt or on the naked skin. Next to tuberculosis the most common disease of the lungs found is asthma, which. as a group, shows well, except that of elderly entrants, who have proved themselves bad risks.

The diseases of the heart most commonly found are, as may be expected, heart murmurs, especially mitral regurgitation. Of course, where any suspicion of heart disease exists, as for instance, where a history of attacks of rheumatism, diphtheria, scarlet fever, grip, etc., may be given, a most careful examination of the heart is necessary, and it is here suggested that many heart murmurs, at first inaudible, are readily discernible after the applicant is made to take a moderate amount of exercise, and while he is in a recumbent position. The care with which medical selection has discriminated is shown where a history of rheumatism is given. These cases. as a rule, show good results with the young entrants but not quite so satisfactory except in this age group. Diseases of the heart in life insurance work are found to be considerably on the increase.

Next in importance is a thorough and complete examination of the *urine* of each applicant, and it is absolutely necessary that this urine should be *passed* in the presence of the examiner. Even your best friend may deceive you when he desires life insurance, knowing that an impairment exists as a result of kidney disease. In my work I have had several cases of attempted substitution, and especially do I remember one case of substitution where the applicant was such a good friend of the examiner and so leading a light in the community that his word was accepted by the examiner and his urine reported as having been passed in his presence. This urine was found to be normal. A further investigation of the case disclosed this fact and likewise showed that the applicant had a large amount of sugar in his urine, resulting in an immediate cancellation of the policy. The specific gravity of the urine to be within safe limits should be not less than 1015 nor more 1025. If not within these limits a further search should be made of additional specimens of urine for any pathological conditions. Of course, the most usual causes of rejection for diseases of the kidneys are albuminuria and glycosuria. These diseases, like those of the heart, are also on the increase. The two chief genito-urinary diseases treated by the specialists—namely, *gonorrhea and syphilis,* affect the risk, as may be expected, very materially differently. A history of gonorrhea given when no history of stricture shows would probably not be considered an impairment to any great degree, although I know of one medical director who rejects a case of gonorrhea nearly as certainly as if the applicant had had syphilis. Those applicants showing a history of syphilis exhibit a very bad record, indeed. In the entire group the mortality is nearly 175 per cent. for those ages up to 28. The mortality in those grouped from 15 to 56 show almost this uniform expectancy, and this in spite of the most careful medical selection given to this class of risks, about 56 years, the results are better with still an excess.

This outline of the important part a physician has in life insurane work, as given above, is, of course, fragmentary and brief, as I am not inclined to-night to impose upon your good nature. In every examination it is the duty of the examiner to be absolutely sure that every question is answered in detail, and in case of any deviation from the normal that full explanation is given, as I find that omissions and partial answers are the chief cause for delay in the issuance of policies, due to unnecessary correspondence that could have been avoided by a slight amount of additional care by the examiner, and such delays frequently mean the loss of the policy, and thereby loss of income to the company and to the agent. Very few normal men deliberately seek insurance. It is usually the impaired risks that take such action. An agent must persuade the normal risk that he *needs* the policy, but after a few days of delay it is frequent that his ardor has cooled and the policy lost.

A frequent question asked by an examiner, and one that they would not ask if they would only reflect a few moments, is the cause for an applicant's rejection. This information is not imparted to examiners for two reasons:

Chiefly. the information given is always of a confidential character and not infrequently is from a source other than that part of the information given by the examiner. Secondly, it would be almost impossible for the examiner to keep this information inviolate, as the agent by a shrewd question would learn the true reason, a fact to which he is not entitled. For similar reasons our company, and the majority of companies doing business in this country, insist that an examination should be made in private with no third person present, as a man would frequently hesitate to give information that would be vital exeecpt to the examiner himself.

Upon analysis of the causes of rejections over a large series of cases during the past four years I find that the greatest number of rejections, about 30 per cent., are due to the excessive use of alcoholic liquors. Second, in importance are rejections on account of poor family histories. about 20 per cent., particularly where there is a history of two or more cases of tuberculosis. Next in importance are genito-urinary diseases comprising a class of nearly 20 per cent., and of these about one-third are due to albuminuria and another one-third to glycosuria; about one-fourth to history of renal calculus, and the remainder to syphilis and gonorrhea with stricture. Next in importance are diseases of the respiratory system, and of these diseases, comprising about 12 per cent., a history of hemorrhage of the lungs, or consumptive tendency, are the chief causes of rejection. In but a few instances are rejections due to asthma or pleurisy, exeept in elderly applicants. Diseases of the circulatory system are next in importance, with about 12 per cent. likewise of rejections. Organic diseases of the heart are about equal in number of rejections to arterio-sclerosis. Of the remaining 6 per cent. general diseases and diseases of the digestive organs are about equal, and of these organs the chief cause of rejection is appendicitis without removal within two years, with single attack, or two or more attacks in the past, with history of gall-stones a very close second.

I likewise desire to call your attention to a new aid in determining desirability of applicants for life insurance which I have used during the past year, which is, as far as I know, entirely new with me for such use, and that is the use of Von Pirquet's tuberculin reaction test, or the old tuberculin test, in cases of exposure to tuberculosis through association with a tubercular patient, or on account of a history of spiting of blood at a remote date or a history of an excessive number of deaths from tuberculosis in the family history. I find it is very difficult to secure the consent of the applicant thereto, but believe this will become increasingly less as such cases realize the difficulty they may have in obtaining insurance. In such applicants as have consented to these tests I find a positive reaction in about 60 per cent. of the cases. Of course, the value of such work can only be determined in its use with a large series of cases over many years.

AMEBIOSIS WITHOUT DYSENTERY.*

By ALEXANDER G. BROWN, JR., A. B., M. D., Richmond, Va.
Professor of Practice of Medicine, University College of Medicine; Physician to Virginia Hospital, etc.

Protocol of Case.—Mrs. A. B., white, aged 23, native of Virginia, residenced in North Carolina for past eight years, admitted to Virginia Hospital, July 8, 1910, in the private service of the writer. Case diagnosed as amebiosis.

Family history was negative.

Personal History.—Five years prior had had a severe attack of dysentery of two months' duration in a North Carolina city. Had resided there two years before this attack. This attack of dysentery complicated a childbirth and was a very desperate illness. Has had great constipation. Each year since first attack has had an illness characterized by low fever, listlessness, loss of weight, loss of appetite, nervousness, colicky pains in abdomen about umbilicus. Had been treated for "malaria," "low typhoid fever," and had been told that "lung trouble" might be at the bottom of her trouble.

Present Illness.—In May, 1910, patient began, as in former years, to lose appetite, feel languid, to lose strength and weight, to feel irritable, become restless and sleepless and to show daily febrile reaction. After treatment for two months by local physician, patient was brought to my private service at Virginia Hospital for diagnosis and treatment.

*Read by title before the Southside Virginia Medical Association, at Franklin, Va., October 4, 1910.

Examination.—Patient showed a strikingly pretty face, attractive and intelligent; skin yellowish, tanned by sun during automobile driving; eyes normal but sclera stained and muddy; nose and throat normal, mucous membrane appearing red and healthy; teeth defective but repaired with gold fillings; tongue coated white; thyroid somewhat enlarged; more noticeable in right lobe.

Lungs and Pleura.—Inspection disclosed normal respiratory expansion of chest wall; uniform and normal thorax; palpation showed normal vocal fremitus and absence of friction sounds or other pathologic phenomena; percussion elicited normal resonance over entire thorax; auscultation revealed normal vesicular breathing with possibly slight roughening and prolongation to expiratory murmur in right apex. But no other pathologic sound was elicited.

Heart.—Apex beat discernible in normal area; transverse diameter of heart normal; first sound normal; second sound accentuated; no murmurs observed; heart rate rapid.

Liver.—Normal.

Spleen—Normal.

Abdomen showed gaseous distention; palpation revealed hyperperistalsis; percussion produced tympanitic note over lower zone of abdomen; pressure with hand secured expression of tenderness and pain about and below umbilicus.

Pelvic examination was not made on account of menstruation; rectal examination was also postponed.

Temperature.—99°F.; pulse 90 per minute; respiration, 20 per minute.

Examination of Blood.—Red blood corpuscles 4,060,000; no microcytes, megalocytes, poikilocytes, polychromatophiles, normoblasts or megaloblasts; hemoglobin 80; color index 99; no malarial parasites; leucocytes 4550; polynuclear neutrophiles 43 per cent.; lymphocytes 50 per cent.; large mononuclears 2 per cent. transitional 3 per cent.; polynuclear eosinophiles 2 per cent.; no polynuclear basophiles; no neutrophilic myelocytes; no eosinophilic myelocytes.

Examination of Urine.—Color, pale amber and transparent; odor normal; specific gravity 1.013; reaction acid; phosphates diminished; bile none; indican abundant; acetones none; blood none; pus none; mucus not in excess; cylindroids none; crystals none; amorphous matter absent; casts none.

Examination of Feces.—Hookworm eggs absent; amebæ present in moderate numbers.

The ameba was first described by Lambl in 1859. He discovered the parasite by examination of the feces of a child suffering with enteritis, but no credence was placed in the description or the explanation offered as to the cause of the bowel disturbance by his contemporaries. In 1875, however, Loesch, of St. Petersburg, identified the organism now known as ameba. and fixed its etiologic relationship to cases displaying symptoms of dysentery, and thus the name amebic dysentery. In Egypt, Kartulinus, a decade later, reported 150 cases of amebic dysentery, in all of which he found amebæ. He also noted and reported the presence of amebæ in liver abscesses complicating cases of dysentery. Koch also found amebæ in intestinal discharges of cases showing dysentery. Osler, in 1890, Stengel, Dock and Councilman, in America; Quicke and Roos in Germany, and in more recent years a great many workers in medicine have noted the presence of amebæ in cases of dysentery, and have established as a fact that it bears a causative relationship to cases showing dysenteric symptoms.

Within the last few years, since the examination of the feces has become a matter of recognized diagnstic- importance in the routine investigation of disease problems, reports of cases of amebiosis have become not infrequent in medical literature. In some of these cases dysentery does not appear so prominently in the symptomatology. The facts, the recognition of the greater frequency of amebæ and the occasional absence of dysentery have aroused the reasonable suspicion that amebiosis exists and is the exciting cause of the clinical picture in many cases whose true etiologic significance has been unknown. No doubt that the clinician in this day would be very infrequent who would fail to investigate carefully the intestinal discharges of cases coming under his care and suffering with prolonged, or even acute, but severe and intractable attacks of dysentery, bloody flux, diarrhea or frequent fluid stools.

The continued presence of a symptom so prominent, in the light of revelations of the

recent knowledge derived from microscopic and chemical study of feces, would demand of the practitioner a pathologic investigation of the stools. But the important point intended to be impressed by this paper is that amebiosis is doubtless present and the exciting factor in the clinical picture in many cases without the prominent symptoms of dysentery.

The incidence of this infection is great and its distribution very general. A prominent army surgeon has said that "amebic dysentery still easily retains first place, as that disease is the white man's worst enemy in the tropics." Its prevalence, as gathered from this quotation, is widespread in the tropics and its virulence is deadly there. But it is now found to be not solely a tropical disease, though, of course, that is the ideal home. In America, for instance, Patterson has cited cases reported in Canada, Maine, New Hampshire, New York, Pennsylvania, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Florida, Tennesssee, Alabama, Mississippi, Ohio, Illinois, Missouri, Michigan, Minnesota, Montana, Arkansas, Oklahoma and Texas.

Current literature shows that amebic infection in our section of the country is far more general than formerly supposed. The Southern States, a most favorable section of the country for the propagation of amebiosis is, undoubtedly, the home of many cases. Some, no doubt, show very vague and indefinite symptoms. Others probably have been unrecognized as amebiosis but diagnosed as ordinary "chronic diarrhea," "chronic intestinal indigestion," "chronic malaria," "worms," "walking typhoid" or tuberculosis.

The *symptomatology* of amebiosis is very vague. There is no definite, clear-cut classical group of symptoms characterizing the diseased condition. The infection is generally of a chronic character. The invasion may be signalized by a pronounced disturbance of the bowels and then lapse into a period of quiescence, now and then showing some group of symptoms of a more or less diagnostic importance.

The disease assumes, in most cases, a chronic course. The case cited in the paper was evidently of a chronic nature. Simon, in reporting fifty cases, states that in one case the disease could be traced back twelve years, in another eight years, in two instances six years and in five cases two years.

Diarrhea may be absent entirely, or it may appear very occasionally and mildly. Attacks of diarrhea, on the other hand, may be very pronounced and frequent, painful, wasting and debilitating. The loss of weight and general listlessness of the patients is marked. There is loss of appetite, insomnia, irritability and intestinal colic in some cases, and a low grade of fever. The observer should be on the look out for liver abscess in these cases and its complications.

Treatment may be considered under two headings: First, surgical, and, second, medical.

Surgical Treatment.—In the failure of medical treatment in some cases of chronic amebic dysentery is to be found the reason for seeking a cure by surgical procedure.

Appendicostomy has been practiced in order to apply complete local treatment to the large bowel. Anders and Rodman state that the operation is best performed by bringing the appendix to the abdominal wall and stitching the meso-appendix to the parietal peritoneum. After forty-eight hours, finding the color good, the appendix is "snipped" with scissors after cocanization. Then a No. 10 rubber catheter is at once placed in the cecum and the irrigation of the bowel begun with a 1 to 4000 solution of quinine and repeated daily as long as required.

Medical Treatment.—I deem rest in bed a most important therapeutic agent in handling these cases. The chronicity of the condition and the usual ambulatory proclivities of the patient unite to make rest in bed an important phase of the treatment; without confinement in bed, failure may be expected in the treatment.

The diet should be "soft" or "liquid." While the patient should be well nourished the intestinal canal should not be over-loaded with unnecessary food products. The food should be easily digested and of high coloric value, for in the treatment the digestive properties of the bowels will be considerably harassed by medication. The treatment is debilitating, and so the dietary of the patient should be upbuilding and supportive in make-up. In view of these considerations I rely upon beef broths,

sour milk, skimmed sweet milk, sugar of milk, eggs, soft brown toast, rice, Irish potatoes and cereals.

Medicine may be given by mouth alone, or by local application in bowel alone, or by a combination of the two methods.

Ipecac is the remedy used most widely in the internal treatment of amebiosis. Sir Patrick Manson reintroduced ipecacuanha and maintained that it is a specific. With him it has assumed the relation of a specific in amebic dysentery that quinine has attained in malaria and mercury in syphilis. Recently Dock and other American clinicians have used ipecacuanha with great satisfaction. It appears now that the want of success at times in its use was due not to the drug but to the inadequate and unsuitable method adopted in its administration. This obstacle to its use was overcome by Sandwith, who suggested that it be introduced into the stomach in capsules of animal membrane with the idea in mind of preventing its dissolution in the stomach. This improvement in its administration was followed by the coating of the ipecac pill with liquid salol. By means of this method, large and sufficient doses of ipeac can be introduced into the intestines without disturbing the stomach—the salol withstanding the stomach secretions and only dissolving in the alkaline fluids of the intestines. Ipecac should in these cases be given in large doses after a few hours of fasting and after purgation.

Depending, of course, upon the exigencies of the case, the patient should get from 40 to 60 grains at first dose. This should be repeated daily with a reduction in the dose of five grains each day. Simon's method has proved satisfactory in the case cited in this paper, and treatment was continued for two weeks, until there was an absence of all fever and it was established that there was complete disappearance of motile amebae in the discharges.

When the salol coating is properly done the patients experience little if any gastric disturbance. The ipecac produces a number of soft, copious stools. Before the fortnight is past appetite begins to return and general improvement is noted in patients. Rogers, of Calcutta, in advocating ipecac in amebic dysentery and as a means of preventing liver abscesses, says that over 90 per cent. of amebic abscesses of the liver can and ought to be prevented by ipecac.

Irrigation of the colon with 1 to 5000 quinine solution is also used, sometimes alone and sometimes with ipecac medication. Nitrate of silver solution applied locally upon the ulceration has been successfully used.

1135 *West Franklin Street.*

Department Of Analyses, Selections, Etc.

CONDUCTED BY
MARK W. PEYSER, M. D, RICHMOND, VA.
Secretary Richmond Academy of Medicine and Surgery, etc.

Calomel to Increase Elimination in Pregnancy.

Stricker Coles, Philadelphia, in an article upon this subject, says that how colomel acts does not seem clearly understood, and there have been great differences of opinion as to its action on the kidneys and liver. The effect that particularly deserves attention in this connection is the action upon all the cells of the body, effecting the proper removal of the waste of each cell, as well as the stimulation of the cells of the liver and the kidneys, increasing their activity, and in this way removing the excrementitious products from the blood. This action of calomel is best obtained by giving from 1-20 to 1-10 grain three times a day, which course can be safely continued throughout pregnancy by omitting it for three or four days every two weeks. To get the best results from these small doses, it should be well triturated with bicarbonate of soda, which increases its action and lessens the danger of salivation.

For the past twelve years the writer has made this method of administration a routine treatment in all pregnant cases where elimination was deficient, as indicated by headache, slight disturbance of the digestion and diminution of solids and urea in the urine. Usually, in less than a week after beginning this treatment these symptoms will disappear and the urea and solids become normal. Then the patient is directed to discontinue the powders, or tablets, until she again feels the need of them.

Calomel should not be employed in large doses as a purgative, however, during pregnancy, as it cannot be eliminated freely after

accumulation, and may have to be stopped before it accomplishes its work, because of the danger of salivating the patient.

The writer has had but one case of salivation and this was due to continuation of the treatment contrary to directions, by the patient herself, for a period of over three months.—(*Therapeutic Gazette,* August 10, 1910.)

Autointoxication in Certain Inflammatory Eye Conditions.

In discussing this condition as a causative factor of certain vascular and functional disturbances of the eye, Shoemaker, of St. Louis, said that in more than one case of conjunctivitis, after he had exhausted his best efforts in the way of local treatment with little or no benefit, great relief was soon obtained by treatment of an existing constipation or indigestion. In such cases a hearty dinner will often undo more in a single night than can be accomplished in weeks in the way of curing by local treatment, especially if much meat and alcoholic stimulants are taken. Some of these patients often are more uncomfortable at night than during the day. Several patients have complained of awaking during the night with quite severe pains in the eyes, and most of them have more or less discomfort when they first awake in the morning and state they have some difficulty in opening their eyes, not on account of the presence of any pus which glues the lids together, but on the contrary, on account of the lids being so dry that they adhere to the globes.

While he has had cases in which the ciliary body is affected, with circumcorneal injection, spasm of the ciliary muscles of subnormal accommodation, he is not satisfied that they were caused by autointoxication, though he has more than once suspected it.

Some patients may present symptoms of autointoxication and yet deny they have any indigestion or constipation. He thinks the explanation of this in many cases is that while the bowels move every day, perhaps, yet the evacuation is not complete and enough fecal matter is retained in the large intestine to produce a toxemia.

He believes that in a great majority of the cases the trouble arises because meats or protein foods are not properly digested, thus permitting excessive putrefaction to occur in the intestines. Some people seem able to digest promptly only a small quantity of meat, while others may not be able to digest any well. As Thayer and Turck have pointed out, in such conditions a few grams of meat may be enough to produce severe symptoms from the poisons formed, and while the amount of poison may be very small, it may, nevertheless, be quite injurious because of its being constantly repeated.

One of his most chronic and persistent cases of conjunctivitis was in a young woman who had chronic appendicitis; and as she was troubled with constipation, he was not sure that the appendicitis had anything to do with the conjunctivitis, but as we are told that constipation is sometimes caused reflexly by a chronic appendicitis, this latter condition may be the primary cause of some of these troubles. R. T. Morris reports a case of double central choroiditis occurring in a man who had a chronically inflamed appendix. With the removal of the appendix the inflammation of the choroid stopped short and cleared up with practically normal vision.—(*Journal A. M. A.,* August 13, 1910.)

The Doctrine of Probabilities in the Early Diagnosis of Peritonitis.

R. M. Harbin says that, as a rule, if pain, tenderness, tumor and fever persist after purging, the disease is of a recent, inflammatory nature, if the pre-existence of tumor can be excluded. Colitis requires to be excluded, which can usually be done by bearing in mind a history of previous attacks, direct imprudence in eating, diarrhea and mucous stools. It is the rare exception to have diarrhea in a spreading peritonitis. An enlarged and prolapsed kidney may be mistaken for appendical abscess, especially if there exist signs of inflammatory adhesions. The symptoms, however are less severe, and the presence or absence of the kidney from its normal habitat may be detected.

An enlarged, suppurating kidney can usually be recognized by a careful urinalysis and by tumor. In every case of chronic appendicitis a careful urinalysis should be made. The appendix shows frequent association with the ovary in morbid processes. A few months ago, a case came under observation that gave a history of attacks of appendicitis with increased pain during menstruation. Operation reveal-

ed the presence of adhesions between the mesentory of the appendix and the ovary.

Salpingitis usually gives pain lower in the abdomen, and is not so intimately associated with intestional disorders; and the mistake should never be made of operating in these acute cases.

The writer summarizes as follows:

1. Peritonitis is a surgical disease, and the so-called idiopathic variety is a misnomer.

2. There should be no fatalities if the diagnosis could be made early.

3. The medical attendant should advise consultation within twenty-four hours of the disease, for no other field of diagnosis is more fruitful of good from frequent consultations.

4. In the absence of positive symptoms, the doctrine of probabilities should be pursued, which is now the accepted rule of procedure in appendicitis.

5. In 96 laparotomies for the causes of peritonitis there was an error of 5.2 per cent. in diagnosis.

6. Delay in the first forty hours is more dangerous than operation, for positive diagnosis may be bought with the price of positive helplessness.

7. Every acute abdominal trouble should receive frequent observations and careful study until the diagnosis is made, or else arrive at a decision as to the safety of waiting.

8. Seventy-four per cent. of the causes of peritonitis proceed from the appendix.

9. The responsibility of delay of operation for appendicitis should be borne by the patient.

10. Extensive autopsies prove that all serious abdominal disorders have an organic base.

11. Peritonitis in the aged usually gives, at first, normal temperature and pulse curves.

12. Acute alimentary disturbances are to be thought of as more common in children than peritoneal infections.

13. The right abdomen furnishes the more common foci for infections.

14. Colitis is one of the most common factors in confusing an early diagnosis of peritonitis.—(*Journal-Record of Medicine*. September, 1910)

The Criminal.

Lydston, in a very able and exhaustive study of the criminal, says that criminologists are agreed that the outcropping of ancestral types of mentality is the basis of the perverted instincts of most criminals.

It is apparent to all physicians who have given this problem any thought that there is an element of abnormality in the perpetrators of crime which, if not the cause of it, is in some way associated with their deviation from the paths of righteousness. In many cases it is possible to determine definite lesions, in others there are unmistakable signs of perverted nutrition, and a smaller percentage presents the stigmata of degeneration in all that term implies. With all due respect to alienists and medical experts who can find indubitable signs of insanity and degeneration in any rascal who is well supplied with funds, it appears that typic degenerates and insane men make a very small factor in the sum total of criminals.

Psychic atavism or reversion is an affliction which may develop in a perfectly normal individual. The veneer of civilization is a very thin one, and in a moment of passion the savage instincts of the troglodyte may rise to the surface and provoke actions which the normal individual would not be guilty of.

We hear much of the alleged white slave traffic in the great cities, but it is open to question whether any woman was ever coereed into following a life of shame. The majority of prostitutes are constitutionally so. There is a defect in brain organization, the determination of which should prove a fertile field for psychiatrists, and open the way to clear understanding of the perversion underlying the criminal instinct. No matter what authorities may say to the contrary, prostitution is a form of mental reversion, and is quite in the same class as crime produced by the same cause.

It is apparent, however, that there are many rascals who are not criminals because of structural defects, *per se*. The combination of reckless extravagance and inordinate laziness so manifest in a certain portion of the population, is responsible for more crooked work and rascally shrewdness than constitutional defects can ever hope to be. The writer has in mind an incompetent attorney with expensive tastes, who, with some women confederates, has engaged for years in systematic blackmail. These crooks have a definite method, and no one who reads the letters they send to work up a case for blackmail would attribute their criminal in-

stincts to degeneration or insanity. It would appear that creatures of this kind are very much on the increase, due to the cost of high living and the disinclination for physical or mental exertion.

It has been said that the penitentiary is full of clever men, and it occurs to the writer that a number of clever candidates are still outside of it. A contributor to a current periodical estimates that there are two criminals at liberty to one where the two belong. This seems a very conservative estimate.—(*Editorial, Lancet-Clinic, October* 8, 1910.)

Treatment of Leg Ulcers.

The method which has been devised by Unna for this purpose has been described by Mr. G. Pernet, who states that to begin with, the ulcer is cleaned up with a 1 to 2000 solution of bichloride of mercury, then iodoform is dusted on the floor of the ulcer. The next step is to paint Unna's gelatine paste liquefied in a hot water bath in such manner that it is not placed on the ulcer itself, but on the parts surrounding it which show redness or discoloration. This paste is made by soaking 15 parts of gelatine in 45 parts of water for two hours. A gentle heat is applied with the addition of glycerine until dissolved. Then the zinc oxide is stirred in to a smooth consistency and the whole permitted to cool. Double-headed bandages, in one piece, rolled from either end, are used, the material being the same as that used in plaster-of-paris work.

Such a bandage is wrung out in warm, sterile water with its middle placed on the leg opposite the ulcer. The first turn is made with enough pressure to lessen the diameter of the limb, the bandage being brought well over the ulcer. It is then taken round the leg with firm pressure, more especially over the actual ulcer, this equal pressure being regulated by the two hands and the turns being evenly applied. The liquid paste is painted on the bandage as it is wound. The renewal of the bandage depends on the amount of the discharge. The method is claimed to be a successful one.—(*St. Louis Medical Review,* September, 1910.)

Tolerance Toward Crazes.

When a thorough study of the literature, addresses, actions and doings of the Christian Scientists *convinces* us that their so-called system is a mixture of fraud, stupidity, and insane delusions; when the chief priestess of the cult—who, while preaching her doctrines, has not forgotten to become enormously rich—tells us, for instance. that she instantly cured a cancer which had eaten into the flesh to a degree that "the jugular vein stood out like a chord"; when the literature is found to consist of the most imbecile gibberish, absolutely unintelligible to a rational being; when the reports of their cures prove on examination to be either pure inventions or gross exaggerations (except in cases of functional neuroses); when, in addition to all that, we see that all their healers, from the highest to the lowest, are furiously bent upon making money, and will not distribute any of their comfort or preach any of their truth without a consideration; when we learn that the chief absent-treatment fakiress — down in Florida, against whom the post-office officials had to issue a fraud order—obtained $200 from a man in New York, under a promise to make his shortened leg two inches longer by *thinking* of it; when osteopathy, which is nothing but a perfected massage, impudently makes claims as a complete system of medicine, capable of curing the most diverse diseases by external manipulation; when an osteopath claims, for instance, that he can "reduce" typhoid fever (as if it were a dislocation), by pressing upon the seventh cervical vertebra; when we see these mostly illiterate bonesetters knocking at the doors of various legislatures to be admitted to the practice of medicine without proper educational requirements; when we see that the followers of these cults endanger not only their own lives, but also the lives of the community by refusing to take any precautions in the infectious diseases; when what is still worse, innocent little children are allowed to die in agony without any attempt at relief—a child that sustained an extensive burn, and another one that had diphtheria in a most virulent form, were cruelly prevented from getting medical aid by their Christian Scientist parents, until death freed them from their cruel sufferings—we say, when we see such facts of similar and worse character, then it becomes our duty to assume an unequivocal attitude. We must expose the humbugs and fight the knaves whenever and wherever we can. This must be the attitude of

the medical press, of the medical societies as a whole, and of every right-minded physician, as an individual and as a citizen.—(*Critic and Guide,* September, 1910.)

Errata.

In the issue of October 7, 1910, it was stated that the new Ehrlick-Hata remedy is a monochlorate, whereas it is really the dichlorhydride of paradiamidodioxy-arseno-benzole.

Book Notices.

Nursing in Diseases of the Eye, Ear, Nose and Throat. By THE COMMITTEE ON NURSES OF THE MANHATTAN EYE, EAR AND THROAT HOSPITAL, New York City. W. B. Saunders Co., Philadelphia and London. 1910. 12mo. 281 pages. Cloth, $1.50 net.

This is an ideal book for nurses having charge of cases of diseases and surgical operations about the eye, ear, nose and throat. Without too much technicality, sufficient is said of the anatomy and physiology of each of the organs in order for the nurse to do her duty. A special feature of excellence of the book consists of what is called the "General Part," which we would be glad for all nurses to study and apply in practice. This "General Part" takes up about 100 pages, and gives instruction about the germ theory of disease, anesthetics, disinfection of rooms and clothing, sterilization, etc. What to do in emergencies is also brought out. The book is well indexed.

Practical Medicine Series. Under general editorial charge of GUSTAVUS P. HEAD, M. D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School, and CHARLES L. MIX, A. M., M. D., Professor of Physical Diagnosis, Northwestern University Medical School. Volume I. Edited by FRANK BILLINGS, M. S., M. D., Head of Medical Department, Rush Medical College, Chicago, and J. H. SALISBURY, A. M., M. D., Professor of Medicine, Chicago Clinical School. Series 1910. Chicago Year Book Publishers. 12mo. 406 pages. Cloth, $1.50 net. Series of ten volumes, $10.

This is the first of the 1910 series of these popular books which give the advances during the preceding year or so in the various departments of medicine, surgery and the specialties. The present volume on *Medicine* is in keeping with the general excellence of others, and only needs announcement of its publication.

Dyspepsia: Its Varieties and Treatment. By W. SOLTAU FENWICK, M. D. (Lond.), Doctor of Medicine, University of Strassburg; Late Physician to Evelina Hospital for Sick Children, etc. Illustrated. W. B. Saunders Co., Philadelphia and London. 1910. 8vo. 485 pages. Cloth, $3 net.

This book will prove a most valuable addition to any practitioner's library. It reviews most all conceivable forms of so-called "dyspepsia" in a concise, instructive manner—stating causes, symptoms, diagnosis and the most approved lines of treatment for each condition. It, however, omits reference to nephrocoloptosis as a most common cause of dyspepsia, although the latter is more strictly a surgical condition, and has only recently been brought out as a surgical advance by Dr. Longyear, of Detroit. Dr. Fenwick's book has collected the reports of a number of cases of "hair balls," forming tumors of large sizes, which could only be removed by surgical measures. Beside the table of contents, references to subjects discussed are made easy by the excellent Index.

Anatomy—Descriptive and Applied. By HENRY GRAY, F. R. S., Fellow of Royal College of Surgeons; Lecturer on Anatomy, St. George's Hospital Medical School, London. Thoroughly revised and re-edited with additions by EDWARD ANTHONY SPITZKA, M. D., Professor General Anatomy, Jefferson Medical College, Philadelphia. Illustrated with 1,208 engravings and colored plates. Lea and Febiger, Philadelphia and New York. 1910. Imperial Octavo. 1,496 pages. Cloth, $6 net; leather, $7 net.

Though the original edition of this book was published over fifty years ago, and the author has long been dead, its plan and accuracy were so marked that the many successive editions have each been in demand by practitioners and as a college text-book. The present edition has been re-edited with additions to text and illustrations. The book is so generally and favorably known to the profession that we hope this edition has been issued in time to meet the wants of college students. To surgeons especially it is an essential book for frequent reference in their work. It is a volume that should be in every medical library.

Lippincott's New Medical Dictionary. By HENRY W. CATTELL, A. M. (Laf.), M. D. (U. of P.), Editor of International Clinics, Fellow of College of Physicians of Philadelphia, etc. FREELY ILLUSTRATED WITH FIGURES IN THE TEXT. Philadelphia and London. J. B. Lippincott Company. 8vo. 1,108 pages. Flexible leather, thumb indexed, $5 net.

The introduction of new terms in medicine

and the allied sciences gives this new dictionary a special demand at this time. Definitions are clear and yet concise, and words are given their proper pronunciation in a form that is easily recognizable. The book is nicely printed and bound and thumb indexed, thus helping ready reference to different letters. It is well adapted to the wants of the college student, as well as to those of the practitioner. With reference to drugs and medicinal preparations, those of the United States Pharmacopeia are given, with their general action and doses. Since "malaria" has been proven to be due to the stings of certain mosquitoes, and not to "bad air," a new term for that condition might well have been introduced. Dr. Robertson, of Virginia, has recently suggested the term "anophelesis."

Editorial.

Medical Society of Virginia.

There seems to be an unusual amount of interest displayed in anticipation of the Norfolk meeting of the Society, which is now so near at hand, and from the numerous letters received at this office relative to the meeting, there is no doubt but that the attendance will be unusually large.

Hearing occasionally from members that the new order of things puts the control of society affairs in the hands of a few Councilors, and that the individual member has but little show, it may not be amiss to remind members that the Medical Society of Virginia is in this special respect the most democratic Medical Society in the country, and in Section 6, of Article VIII, of the By-Laws, the following sentences will be found: "Recommendations, reports and official acts of every nature whatsoever made, rendered or performed by the Executive Council, may be discussed by any member of the society in session, and amended, rejected, approved or referred, as the society may determine. The society may, at its discretion, refer any matter back to the Executive Council for further and more complete investigation." Also, that at the 1908 meeting of the Executive Council, in order that members might be fully cognizant of what was being done at all times, the Council decided, by resolution, that its proceedings "shall be in no sense secret from the society; that any member of the society may be present at any of its sessions."

In connection with the railroad rates, as published in the program, the Norfolk and Western Railway Company will give the same rates as those furnished by other roads entering Norfolk, though notice of same was received too late to be published in the program.

Dr. Southgate Leigh, and Drs. Lomax, Gwathmey and Kirkland Ruffin will tender receptions to the visiting doctors.

Catawba Sanatorium,

Virginia's free institution for the care of tuberculosis patients, with the addition of the improvements of the last few weeks, is now ready to accommodate 120 patients. The new buildings include several modern lean-tos, large amusement and recreation hall, dining hall and small office building.

The waiting list is already so large that it will be impossible to accommodate all applicants within the next three months. As fast as vacancies occur, however, new patients will be taken in. Applications should be addressed to Superintendent of the Sanatorium, Catawba, Va.

Red-Cross Christmas Seals.

The Virginia Anti-Tuberculosis Association has secured the privilege of selling these seals throughout most of the State, for use on the backs of Christmas letters and packages, as was done last year. They cost but a penny a piece, but if they meet with even the amount of favor with which they were received last year, they will be the means of materially aiding the fight against the white plague throughout this State and the entire country. Dr. Douglas S. Freeman, of 1110 Capitol street, Richmond, Va., will be pleased to furnish further information.

The Northampton County Medical Society

Held its regular quarterly meeting at Cape Charles, Va., October the fifth, Dr. E. W. P. Downing presiding. Invited guest, Dr. Southgate Leigh, of Norfolk, presented an interesting paper. A number of Accomac county doctors attended the meeting to discuss the feasibility of having a bi-county association, which proposition was quite favorably considered, and

Dr. John H. Ayres, of Accomac, was made temporary chairman of the organizing committee. The next meeting will be held at Cape Charles, January 5, 1911.

A Series of Clinical Lectures on Diseases of the Skin

Will be given by Dr. L. Duncan Bulkley in the Out-Patient Hall of the New York Skin and Cancer Hospital on Wednesday afternoons from November 2nd to December 21, 1910. The course will be free to the medical profession.

The American Roentgen-Ray Society

Will hold its next meeting at the Jefferson Hotel, Richmond, Va., during September, 1911, and has extended the time of the meeting a day, in order to give the visitors an opportunity to see something of the city and vicinity. The society is composed of X-ray operators of the United States and Canada, and work by many of the world's best operators will be exhibited at the Richmond meeting. The meeting recently held in Detroit was pronounced the most successful in the history of the society. Among the representatives from foreign societies was Dr. Fedor Haenish, one of the leading Roentgenologists of the world, who, as a delegate from the Deutsche Roentgen Geselschaft, took an active part in the proceedings. Owing to his familiarity with the English language his talks were specially enjoyed.

Officers for the ensuing year are: President, Dr. Percy Brown, Boston, Mass.; Vice-Presidents—Drs. Edward H. Skinner, Kansas City, Mo.; W. C. Hill, Cleveland, O., and Willis F. Manges, Philadelphia, Pa.; Secretary, Dr. Fred H. Baetjer, Baltimore, Md., and Treasurer, Dr. Charles F. Bowen, Columbus, O.

The American Association of Clinical Research,

At its recent meeting elected Dr. Alvin Roy Peebles, Boulder, Col., president, and Dr. James Krauss, 419 Boylston Street, Boston, Mass., general secretary and treasurer. All physicians and surgeons are urged to co-operate in the movement of conclusive clinical research, special information in regard to which may be obtained from the secretary.

The Association of Military Surgeons of the United States

Will, as heretofore noted in this journal, meet in Richmond, Va., October 31st-November 4th, inclusive. It is composed of medical officers of the Army, Navy, Marine Hospital Service, National Guard and Medical Reserve Corps of the United States, and is attended, usually, by many foreign officers of distinction.

The local Committee of Arrangements has provided the following program: October 31st, informal reception at the Jefferson Hotel; November 1st, public meeting at the Jefferson Hotel; November 2nd, reception by Governor and Mrs. Mann; November 3rd, banquet at Westmoreland Club; November 4th, reception at the Country Club. A committee of ladies will look out for the entertainment of the ladies accompanying the visitors.

In this connection it is hoped that all ex-medical officers of the militia in Virginia will at once send in their applications for membership to the secretary, Major Charles Lynch, Washington, D. C.

The Jefferson Surgical Hospital, Roanoke, Va.,

On account of the crowded accommodations, has found it necessary to make an addition of fifteen rooms, work on which is progressing nicely. While in the builders' hands, a handsome operating room, at an estimated cost of $8,000, is also to be added. Dr. Hugh H. Trout, of Roanoke, Va., is physician-in-charge.

Obituary Record.

Dr. Frank B. Olhausen,

Died at his home in Harrisonburg, Va., of cirrhosis of the liver, October the 8th. He was born in Pennsylvania in February, 1876, but had lived in Harrisonburg most of his life. He graduated in medicine from the University College of Medicine, Richmond, in 1898, since which time he has been prominently identified with his State and local medical organizations, in addition to a number of fraternal orders. His wife and three children survive him.

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Original Communications.

MAN'S INHUMANITY TO MAN.*

By E. T. BRADY, M. D., Abingdon, Va.
President Medical Society of Virginia, Member Medical Examining Board of Virginia, etc.

Ladies and Gentlemen, and Fellows of the Society:

In casting about for material from which to concoct the annual dose which the president of this society is expected to administer to the assembled public and profession, I have been amazed at the multiplicity of subjects which might, with propriety, be presented to such an audience as this.

The relations which of necessity exist between the public and our profession are such as to render appropriate innumerable subjects, but we physicians have had so deeply branded into us in the crucible of experience the fact that it is usually inexpedient, and always unpopular, to render advice which runs counter to the wishes of our clientele, that it frequently taxes our ingenuity to gild the pill which we feel in duty bound to administer. So, in saying anything, I hesitate, not so much on account of what might properly be said, as because of doubt as to how, properly, to say it.

The discussion of the physical frailties of mankind, our peculiar field for study (and, I am frank to say, often peculiarly studied), will, as reference to the program shows, be fully and fittingly presented at subsequent sessions, and I will simply present for your consideration some of our social amenities under the caption of "Man's Inhumanity to Man." Having jotted down, from time to time, such items as might be included under this head, I have been forced to the conclusion that to adequately treat them would necessitate the rewriting of all treatises on the law and the gospel.

I am, therefore, compelled to make but the briefest mention of, and most casual comment upon, a few of the very evident inhumanities. I do this, not as a pessimist, but hoping for better things, and that frank recognition may lead to preventive measures.

It seems that the trend of the age is toward the abolition of humanity and the blotting from memory of the eleventh and greatest commandment, "Thou shalt love thy neighbor as thyself." We are blindly following the fetich of "Business" at the expense of fraternity.

In the older days, men were educated in those branches of polite and classic literature which were spoken of as "The Humanities," because they stimulated the highest type of culture in all human faculties and powers. Therefore, the term "Humanities" was used to designate those studies which were especially adapted to cultivate true humanity in man. Our latter day educational methods are growing more and more lax. Instead of broad culture, the elective method not only narrows the field of study, but permits, even encourages, each individual to select and measure the narrow intellectual coffin wherein to bury his opportunity for real culture.

"Short cuts" are recommended, and even men who aspire to a "Degree," for the degree's sake, not for the culture it should typify, actually con the curricula with careful forethought as to how few "tickets" they need carry in order to attain their object, forgetting that while a few steps lead to a certain eminence, the steep that is reached by the most climbing affords the broadest view. *Indeed*, our educational methods are faulty! The professional schools are most remiss. The low standards of entrance requirements, and, mark you, I speak of the schools of law, divinity and pedagogy, as

*Annual address of the President, delivered before the forty-first annual session of the Medical Society of Virginia at Norfolk, Va., October 25, 1910.

one with those of medicine, are admitting to their halls, and putting through, men untrained, unprepared, and having no conception of "The Humanities"; and we, by our complaisant acquiescence, are passively encouraging them. Is it to be wondered at that the public is beginning to look askance at the once respected professions? When untutored and unprepared students sit at the feet of inexperienced, even ignorant instructors, can we expect broad-guaged thinkers as a result? "Do men gather grapes of thorns, or figs of thistles?" The indifference to this important matter constitutes one of our most evident inhumanities. The ranting, opportunist preacher, is usurping the place once held by a revered and deservedly honored Spiritual Shepherd. The shyster, ambulance chaser, or "Uriah Heep," is pushing his despicable way over the old and faithful family legal adviser. The mercenary in medicine, with his corps of assistant "*expert* specialists" (most of whom graduated a few months before), is dethroning the faithful and tried old family physicians, and the suavest, most tactful money-getters are being chosen to head once revered universities.

Another great inhumanity threatens us in a growing war spirit. We are insidiously—of late, most rapidly—creating an environment which will lead inevitably to war. Aside from the commercial spirit which is behind this, and which is founded upon the maxim that "He may get who has the power, and he may hold who can," we are, by our increasing preparedness, paving the way for that impulse which will suddenly explode.

What a travesty upon humanity, the sight of every Christian nation, in times of perfect peace, overwhelming their citizenship with burdensome taxation in order to excel in their readiness to destroy each other. "Defense" is dribble. Since when is it considered that placing a "chip on the shoulder" is the best method of avoiding difficulty? We do not fail to mouth our hypocritical petitions, "From war and pestilence, Good Lord deliver us." Why not make some rational effort toward avoiding war, which is worse than any pestilence? Further comment is unnecessary, except this, that Christianity and Humanity are so nearly synonymous as to make safe the prediction that when Humanity ceases to be humane, Divinity will cease to be Divine.

This suggests consideration of what we are doing to combat such physical ills as tuberculosis, small-pox, cholera, the bubonic plague, typhoid, the malarias, rabies, etc. I mention these efforts not so much to commend—what cannot be too strongly commended—as to contrast the brave humanity of these efforts, with the craven, inhuman indifference, which, through mistaken modesty, has permitted the unchallenged increase of a perpetual pestilence, which may be styled the Great Black Plague of Sexual Diseases. These are with us always and are the cause of most blindness, the progenitors of most suffering, and the chief lieutenants of death. How shall we excuse this indifference? The increasing horrors of these sexual ailments demand prompt, vigorous and united effort from both the profession and the laity, even though it may be necessary to rend the veil of modestry, in order to disclose the "Naked Truth."

Time will not permit even the briefest mention of many of the lesser inhumanities, but there are a few which bear upon our reciprocal relations as doctor and patient, which cannot well be omitted. One, the drug habit, a menace whose leaping progress should rouse us to more thorough appreciation of its terrors, and if possible its control. These habits are due, largely to the doctors, but equally to patients and to patent medicines. We, as physicians, are careless to the extent of inhumanity when we use insidious but soothing drugs, which are only calmative and never curative. The young man prescribes them for prestige, because it is music to his ears to hear his patients relate how good Dr. ———'s medicine makes them feel. It is to be hoped that when the "measure for measure" justice is meted out, he may dance to that music through an eternity of penitence. You, as patients, err by refilling again and again prescriptions which were humanely intended to tide you over a painful period until proper remedies have removed the cause of your suffering. You *must* be warned. Indulgence here destroys morale as well as physique, and not alone the victim of the habit, but makes "a hell" of the home which should be an earthly heaven. They enslave with a degradation worse than death. I say nothing to those who use patent medicines. Such ignorance and thoughtless-

ness as will permit their use would be too dense for argument to penetrate. Such organisms as survive them must be patent, and to reform them might render one liable for invading the patent laws.

Next let me call attention to our criminal laws as an evidence of inhumanity codified. In the light of experience and observation, I can conceive of no method, which could be devised by the most malignant demon, that would be better calculated to foster crime than our present, so-called civilized, criminal code. A man, poor, the head of a family, commits, whether from poverty, ignorance, necessity, or depravity, an infringement of these laws. Under this beneficent code, he is taken from his family, lodged in an unhygienic, frequently vermin-infested jail, there to consort with other offenders until his trial. When sentenced, he is sent, presumably for a few years imprisonment to a crowded penitentiary, but in reality his sentence is to a lifetime of crime. Arriving at the penitentiary—a most Christian and money-making institution—he is herded with assorted criminals of all types, beginning at once his initiation into every form of deviltry. At the expiration of his term, a full-fledged graduate in criminal possibilities and methods, and an expert in escaping discovery, he is returned to his community, there to meet with a social quarantine which effectively forbids association with such companionship as could influence him for good. Pointed out and gossiped over as a felon and an outcast, treated as a moral leper, he does the natural thing, and again resorts to crime for support. In time, he is again discovered, convicted, and returns to the fountain-head for a post-graduate course.

This is no fancy picture. It is not only real, but usual. *Is it humane?* Nor does the inhumanity of it end here. What of the wife and children? Suddenly bereft of their only support, without resource, they too are socially ostracized and reduced to beggary or crime in order to exist. And thus the class increases. No sheltering arm of humanity encircles them with fostering care. No mantle of charity covers their delinquencies, but, instead, they are surrounded by a moral dead-line, a social "holier than thou" taboo, and however much they may resist temptation, however much they suffer ere their natural scruples are overcome, yet many do at last succumb, and sink to their degradation amidst an atmosphere saturated with the odor of sanctity. Now this is not because efforts at reform have not been made, even spasmodically urged. The law and the legal professions are so fettered to precedent that, as a matter of routine, they bitterly and effectually oppose suggested alterations of existing law.

Home over-sight for first offenders, children's courts, wages for convicts, the support of the innocent families, prison reform, etc., have had their advocates, but these suggestions, as a rule, die from the common manifestation of inhumanity, indifference. This question is one of social and political economy. We should approach it as citizens. Get behind these movements and push in the name of humanity. Punishment there must be, but not inhumane punishment, and remembering that the warning, "An eye for an eye and a tooth for a tooth," drastic as it was authoritative, never hinted at the punishment of an innocent family because of one guilty member. With this question, as with all ills, prevention is better than cure, and with as painstaking attention to the prevention of crime as is manifested in its conviction, there would be much to hope for. Legal criminal codes are not preventives; they are deterrents. They are waved before the multitude as warnings of what to expect if convicted of certain wrongs, but this little meat of warning is but a very thin slice, sandwiched between whole volumes of methods to technically escape conviction.

The old Medicine Men of barbarous tradition were wont to beat on tom-toms, and dance the medicine dance with noisy incantations to deter the evil spirits from spreading small-pox through their tribes. Just so does our petty criminal code flaunt its barbarities in the face of the tempted, hoping that its threats may act as a deterrent, but just as the small-pox refused to yield except to vaccination, so crime is only going to yield to inoculation with the "milk of human kindness." Do not say to mankind, thus will we do if you fall, but let us rather say, let us teach you not to want to fall, let us support you when weak, let us shield you from temptation. Search out the tempted, instead of heaping humiliation and degradation upon him and his family, because a temptation *we* could have prevented has proven too strong for *him*.

Our indifference played no insignificant part in his transgression.

I now present a universal inhumanity—one which, like another previously alluded to, is, when spoken of at all, whispered with bated breath—our treatment of the unborn. When an infinite Creator made man complete and perfect after his own likeness, he endowed him with the attribute of generation, the full capacity to perpetuate his species by reproducing himself in his progeny, alike possibly complete and perfect. A comparison of the resultant of to-day with the ideal man will give an approximate idea as to how this duty has been fulfilled. The unwitting offspring of to-day must emerge, not because of, but in spite of, the guarding guantlet of civilized Christianity. Vanity, social aspirations, fashion, irregular habits, fads, sexual diseases, "mothers' friends," ignorance and uncleanliness, all fix their impress indelibly upon the unborn. Not one young woman in ten thousand enters the marital relation with any real understanding of its duties, possibilities, its responsibilities and obligations to her home, her offspring, or her State. Maternity, the highest human possibility, is considered now-a-days as an inconvenience, whose absence is a matter for congratulation, and the up-to-date matron prides herself upon her knowledge of criminal preventive measures, rather than her competency to properly guide to its culmination that function which ennobles her, and to emphasize the dignity of which a Christ was permitted to be incarnated.

Not only is maternal ignorance the rule, but even the embryonic, the possible, the future mothers, the school-girls are kept in densest ignorance of the simplest evidences of approaching puberty, and for lack of instruction in the simplest matters governing the hygiene of their distinctive function, suffer, not only at first, but not infrequently through life. No school should be permitted to retain its charter which does not include in its course, careful, guarded, but competent instruction on these most important matters.

There is yet another class of the unborn demanding consideration. I allude to those who should have been born and were not, and those who never will be. The high grade of living, with the low grade of morale, have conjoined to make this class alarmingly, even menacingly, frequent. Even the apathetic public are recognizing the possibilities of "race suicide." A competent investigator claims that of 1,000 conceptions, there are 600 births. Of the 400 unaccounted for, only 50 are aborted by disease or accident. Is not this too crying an inhumanity to neglect? Consider it, 350 murders, for every 600 births! Not only murders, but cold blooded, premeditated, and against defenseless innocents! Of necessity, this requires the conspiracy of assistants. Who can measure the evil effects of this slaughter of the innocents? Herod, out Heroded and by Christian, civilized matrons! Even our code makes this the most heinous of crimes, though unfortunately, it makes it accommodatingly impossible to fix the offense upon the guilty.

It is not, perhaps, wholly inappropriate to mention here what ought to surprise you. That is, the fact and it is a fact that an overwhelmingly large majority of these horrible crimes are perpetrated by so-called Christian and intelligent wives, who thus, by example, teach from their vaunted social height a doctrine which places convenience and selfishness above duty and morality. Strange to say, the unfortunate "maid-mothers," whose "faith unfaithful made them falsely true" bear their martyrdom of shame to a successful issue, and fight a lifetime struggle against the scorn and contumely heaped upon them ofttimes by those whose souls are steeped in the blood of their own offspring. Such souls deserve a crown of glory, which they doubtless will wear, when their supercilious sisters are being branded in the eternal fires of purification.

I am aware that in this rambling talk I have touched upon subjects which are unusual in a public address. In doing so, I have alluded to them bluntly and without hypocritical extenuating pleas. Squeamishness is never sincere, and sincerity is my only excuse. The primitive at least is real, and always unvarnished. I only hope that I have not offended in good taste. These subjects are issues upon which too much depends to permit of silence. If the dose has seemed drastic, remember that drastic measures are ofttimes needed to put us in working condition. The conditions to which I have called your attention need work. Concerted, earnest, effort can alleviate all and eradicate many. Most of these have come about through the in-

difference of the average citizen, who is bent on his own selfish road to his imaginary goal, success. Cast off this word success; it is but a selfish shell which masks many a good man. He succeeds who does most for the common weal within his sphere. "Tis not in mortals to command success, but we'll do better, we'll deserve it," is the best guide. Let us get together behind the wheel of progress, and shoulder to shoulder, each helping the other, strive for a better State by becoming better citizens, remembering that—

"It isn't the winning that makes a man,
But its playing the game on the good old plan
As hard and as straight as a mortal can."

SOME OBSERVATIONS ON DIET IN TUBERCULOSIS.*

By LEROY S. PETERS, M. D., Silver City, New Mexico.

"Eat, drink and be merry, for to-morrow ye die" was the motto embodying the creed of the followers of Epicurus in the ages before Christ, and apparently this self same belief has been handed down through the cycles of time until the vast throng of "lungers" and consumptive advisers were prone to fit it into their health doctrine, and until recent years the unhappy consumptive was told to fill himself to the bursting point with food and drink in a vain endeavor to cure the great "white plague." Possibly this in the light of previous results in the treatment of this disease was not to be looked upon as unwholesome advice, since the majority who were unfortunate enough to be victims were wont to die on the morrow, so to speak, and by this eating and drinking were able to pass into the great unknown in comparative comfort—at least let us say with the appetite satisfied and the stomach filled to the bursting point.

Strange, is it not, that in all disease other than tuberculosis some attempt is made to regulate diet and prescribe what seems fitting? And to that end forms of diet have been advised which have the semblance of sanity to say the least, and the patient's digestive apparatus suffers little, if any, inconvenience from his run of illness.

In tuberculosis, on the other hand, little thought is given by the average physician as to what shall, and what shall not, be eaten. True it is that the literature abounds in articles on diet, and to-day much more care is given to the diet regime in sanatoria and by lung specialists than has been done heretofore. Still it is a deplorable fact that we have almost as many suggestions as to a suitable diet as we have workers along this given line. Some observers are still clinging to the doctrines of Epicurus, mentioned in the beginning, and crying aloud for the food of the cow and the overworked hen, advising it in quantities sufficient to feed the population of the universe instead of the few patients that come under their care and observation. This, too, is advised to the exclusion of all sane articles of diet, and without regard to the condition of the patient or better still perhaps with utter disregard of everything. I have known patients who were drinking twenty-six glasses of milk and swallowing a dozen raw eggs per day and in addition were making a brave attempt to eat three meals that would do credit to a harvest hand. This they were told would cure tuberculosis. We grant that it should have done something. Perhaps the over-supply of nourishment was sufficient to produce a state of inertia in bugdom, and the helpless tubercle bacillus was so over-fed that it became inactive through corpulence.

On the other hand cures were made and are being made to-day with little regard to diet. Believe me, I do not mean to convey the impression that an utter disregard of sane principles along diet lines tends to kill rather than cure; but I do believe that better results can be obtained by a suitable diet than by the older methods of gluttony. In a disease in which the cure is so far distant and the time of cure chasing is measured in months and years instead of days and weeks, we must out of respect to the future happiness of our patient preserve, as far as possible, a good digestive apparatus, otherwise we cure the tuberculosis, perhaps, but make of our victim a hopeless dyspeptic for the years to come.

We have passed through almost as motley an array of food cures as we have those of patent medicines, among which may be mentioned the milk cure, the whey cure, the koumiss cure, and the grape cure, the beneficial effects in all of which may be traced to the outdoor life and proper climatic conditions under which the patients lived, and little, if any, value attributed to the particular form of diet.

*Read before the New Mexico Medical Society at Albuquerque, N. M., September 29-October 1, 1910.

Since the advent of the sanatorium much good work has been done along diet lines. At first everything was "hit and miss" with the accent on the "miss," but in recent years out of this chaos some system has at last developed. Great difference of opinion still exists, but, for the most part, the better men are condemning the old idea of forced feeding.

We, in the private institutions, are at a disadvantage. Patients come to us with the idea of eating and drinking everything in sight, and feel they are not getting their money's worth when advised against such insanity. In the charitable and semi-endowed sanatoriums where infraction of rules means expulsion, much more can be done toward a restriction of diet. King, at Liberty, N. Y., has done much to show that patients do far better on a limited diet scientifically prepared than by the older methods of stuffing. He feeds from 2,800 to nearly 4,000 calories per day, according to previous occupation and environment of the patient. Thus a man of sedentary habits would not require the diet of a man from the laboring classes. He feeds a diet containing the following percentages: Proteids, 22 per cent.; fats, 33 per cent.; carbohydrates, 45 per cent. For some time before this report was published I had been feeding a diet similiar to King's and was gratified to note a much better general improvement among my patients than I had noted on the heavier diets before prescribed. There was much less digestive disturbance and the gain in weight was as marked as under the old regime. I have always believed that the percentage of fats in the ordinary diet was much too low and, although my method is very similar to that of King, I feed a smaller percentage of proteids, and a larger percentage of fats, my formula being proteids, 18 per cent.; fats, 40 per cent.; carbohydrates, 42 per cent., feeding from 2,500 to 3,000 calories per day. This I use for the average case, asking any patient who fails to gain on this amount to prepare a list of food consumed for two days previous to his report and submit this list to me for consideration and correction. Then I work along individual lines until I hit upon a form best suited to the individual case. Left to themselves, patients invariably eat too little fat, filling their stomachs with those articles of diet that tickle the palate and appease temporarily the little appetite they may happen to have.

Never feed patients milk and eggs between meals unless it is an utter impossibility to help them on three square meals a day. Give the stomach a chance to breathe and have its being. Machinery worked over-time is doomed to wear out and loose its usefulness, and man's digestive apparatus is no exception to this rule. The prognosis of a given case depends largely on digestion, and with this stamped on ones mental horizon let us not change a favorable into an unfavorable prognosis merely because some one long since dead remarked that, "If you would get well of tuberculosis go into the mountains and live on the fruit of the cow."

Many of us are led to believe that because a given case adds pound after pound to his shrunken frame by the stuffing process until he is far above his normal weight that a cure is in sight. Let us not be blinded by a mere addition of weight. Fat in itself has never yet, nor never will, cure tuberculosis. I recall a girl, now dead, who came to us in the far advanced stage of the disease, and whose wasted body a gentle breeze would have carried far into the unknown lands, whose mother begged us to let her stay in vain hope of cure, who at the end of three months' time would have graced a patent medicine "ad" with the motto, "Before and after taking." Her bony frame had swelled with fat on forced feeding until with difficulty she looked from slits in her cheeks that did for eyes and the scales gave her a good twenty pounds above her normal, yet with all this the disease was an easy victor and the patient was sent home to die.

I am not a pessimist, but I never let myself indulge in optimistic reveries merely on a gain in weight. "Get to your average normal" is my advice and then appetite or not, do not attempt to add useless pounds to your bony framework merely because some misguided doctor said get fat and your troubles with tuberculosis are forever over.

The foregoing reports refer to the average patient in average condition on admission to the sanatorium. It is needless to say that not all patients can be given the same diet with the same good results. Fever cases must be given their heaviest meals before the afternoon rise of temperature. Fever up to 101° I dis-

regard, finding that the average patient can eat and assimilate the average diet without trouble even at this point. Over that I usually give liquid foods; using milk, eggs, and broths, such as beef and clam, or possibly the juice of fresh beef. Prepared foods, cod liver oil and the various proprietaries I mention merely to condemn, for the food values of such nostrums are to be found only on the wrapper of the manufacturer.

Occasionally patients are troubled with an irritable cough after or during meals which, owing to the reflex provoked, causes vomiting and a loss of food already taken. To these I advise the recumbent posture until the paroxysm ceases, the use of cracked ice or in some cases a spray of some bland oil. These measures usually suffice, but if they do not, and a meal is lost, I advise two raw eggs and two glasses of milk at once. This is generally retained and the patient has lost little by his troublesome complication. Rest is advised before and after all nourishment as better results are obtained, both in digestion and assimilation in this way.

As I mentioned in an earlier part of this paper on a restricted diet such as I have outlined little, if any, digestive disturbance follows. There are, of course, sensitive stomachs that must be petted and at times recourse must be had to drugs. However, I have been able in the past, and I see no immediate need of change in the future, to treat tuberculosis with but seldom recourse to medicines. Out of a gastric analysis of close to three hundred cases of indigestion in the Cook County Hospital for Tuberculosis, Chicago, I found a deficiency of free hydrochloric acid. With this in mind I give to the few who have slight gastric disturbance scale pepsin and hydrochloric acid after meals. Add to this salol when the intestines seem at fault and one needs seldom to look farther for corrective remedies.

But I am not dealing with treatment. Nor do I claim to have covered the subject of diet in tuberculosis. The field is too vast and the unexplored corners too remote and all of us are merely picking on the surface. Some day we shall be more scientific and the various opinions which now seem at swords points will be fused into one and the question of diet in tuberculosis will be put on the shelf along with other problems that science has solved.

DIAGNOSIS OF TUBAL ABORTION AND RUPTURE.*

By CHARLES E. CONGDON, M. D., Buffalo, N. Y.

It was formerly held that the common termination of a tubal pregnancy was by rupture. Indeed, tubal abortion was first described by Werth as late as 1887. Schrenck, in 1892, noted abortion only eight times in 610 cases, collected from the literature. On the other hand, in 289 cases reported by Martin, Orthmann, Mandel and Schmidt, Fehling and Gletsch, 78 per cent. ended by abortion, and 22 per cent. by rupture. Martin, therefore, considers tubal abortion to be the rule. (See William's article in Kelly & Noble's *Gynecology and Abdominal Surgery.*)

My own impression is that rupture is more frequent but it must be confessed that, in the early work, inspection was not carefully practiced nor with the same scientific basis, since it was taken for granted that the embryo was discharged into the abdominal cavity in practically all cases except those in which it entered the broad ligament.

Some writers would lead one to believe that the differential diagnosis between tubal abortion and rupture is easy and that one should operate only on cases of rupture. A little reflection, however, will convince one that the differentiation between these conditions, even with the abdomen open, depends largely on the personal equation. Theoretically, one may distinguish sharply between a rupture of the tubal wall, with open vessels and the expulsion of the embryo through the free end of the Fallopian tube, the former a menace to life, the other resulting merely in the presence of sterile absorbable organic material. Practically, tubal abortion is by no means a simple extrusion through a dilatable orifice. As in the case of ordinary uterine abortion, it is frequently accompanied by massive hemorrhage, a statement based on actual personal experience. Conversely, I have operated on cases in which the embryo had escaped through a tube ruptured at a distance from the fimbriated extremity, but with comparatively little hemorrhage.

Thus, while it is interesting from the pathologic standpoint to discriminate between tubal abortion and rupture, it should clearly be re-

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cognized (1) that statistics as to the relative frequency of these conditions, based on inspection at operation, often necessarily made hastily, cannot be accurate; (2) that differential diagnosis prior to operation is impossible; (3) that even if the differentiation could be made, it would not be a safe criterion of the advisability or inadvisability of operative interference.

Practically, the main points to determine, are the presence or absence of an appreciable hemorrhage into the abdomen and its source. Hence, no attempt will be made in the further discussion, to distinguish between tubal abortion and rupture.

The signs and symptoms of tubal pregnancy may be divided into three periods: Before, at the time of, and after the displacement of the embryo from the tube. A great many papers have been written on this subject, but, unfortunately, too many authors have discussed it from an academic standpoint and have made statements based on inadequate a priori premises, which subsequent experience has shown to be incorrect. There may be mentioned, for instance, the dictum that some inflammatory change, especially gonococcic infection, predisposed to tubal pregnancy by robbing the tube of its cilia, whereas, in my experience, a fairly normal condition of the tube seems prerequisite to the development of the ovum within it. With more direct reference to diagnosis, may be cited the former teaching that tubal abortion was extremely rare, and the present swing of the pendulum to the opposite extreme, with the attempt to exclude abortive cases from the category of those requiring operative interference. Every operator knows that the great majority of cases reach him with the diagnosis incorrectly made. This fact is due, I believe, not to the incompetence of the general practitioner, but to the faulty and unpractical teaching which he has received from those supposedly expert.

The diagnosis may be somewhat simplified by keeping clearly in mind, certain general principles. For practical purposes, we may consider ectopic pregnancy as always tubal. Ovarian pregnancy was not positively demonstrated until the case of Dr. Katharine Van Tussenbroeck, of Amsterdam, in 1899, Auning and Littlewood confirming her report in 1901, by a specimen presented to the London Obstetric Society. Since then, a very few other indubitable cases have been encountered. The interstitial type either becomes a uterine pregnancy or it has the same tendencies and requires the same management as tubal pregnancy.

It is conceded that the great majority of cases of tubal pregnancy rupture or abort by the twelfth or fourteenth week, thus pretty definitely limiting the first period and often enabling us to make a very simple exclusive diagnosis. Rupture occurs, on the average, earlier than abortion.

Rupture may be sudden or gradual, complete or incomplete. When sudden, it is practically instantaneous. The term complete indicates the discharge of the entire embryo, including the placenta. The term incomplete means, not that the rupture has not penetrated the walls of the tube, but that all or some parts of the products of conception remain inside. The same general principles of classification apply also to tubal abortion, as well as to ordinary uterine abortion.

Rupture may take place either into the abdominal cavity or into the broad ligament. The former is the more common and the more dangerous form. After rupture into the broad ligament, there may be a secondary rupture into the abdominal cavity, constituting the so-called abdominal pregnancy, or, if no such secondary rupture occurs, an entirely different group of cases is developed, from those requiring emergent diagnosis and immediate surgical intervention, namely, the group of ectopic gestation continuing to the viability of the foetus, of lithopedion, of suppurating cysts discharging into the bladder, bowel, etc.

DIAGNOSIS PRIOR TO RUPTURE.

It is a truism that the diagnosis of ectopic pregnancy in the first period, is included in the diagnosis of pregnancy in general, and, with rare exceptions, covers the first three or three and a half lunar months, when the greatest diagnostic difficulties are encountered. As Sutton and Giles (*Diseases of Women*) have shown, from a careful analysis of a large series of cases, ectopic gestation is most apt to occur in women who have been childless for a number of years, but, contrary to the prevailing opinion. it is not especially likely to occur in those with serious tubal disease, or indeed, in those

who have had serious pelvic disease of any kind. Hence, it develops par excellence in women least likely to be under gynecologic observation, to pay attention to warning symptoms or even to remember the dates of their menstruation. Mammary signs, uterine enlargement, morning sickness, discoloration of vulva and vagina, softening of the cervix, thyroid swelling, skipping of menses, etc., severally or combined, though liable to fallacies in both directions, are very significant in young women just beginning their sexual life, but, for one reason or another, less significant and more apt to be misleading, in the class of cases under discussion.

Even when the various signs and symptoms of pregnancy are fairly clear, it is often impossible, especially in parous women, to determine whether the uterus does or does not contain the ovum, at an early stage of pregnancy, and, while the disclosure by bimanual palpation of a sensitive and swollen tube would naturally suggest ectopic pregnancy, even this condition may be misleading, as has often been demonstrated by operation. Indeed, I believe that the diagnosis of ectopic gestation when made in what was supposed to be the first stage, has usually proved to be erroneous, operation disclosing some inflammatory condition of the tube or ovary, an ovarian cyst or fibroid tumor with twisted pedicle, appendicitis or even a normal gravid uterus, with no obvious explanation of the symptoms leading to the diagnosis of ectopic gestation.

Bazy (*Rev. de Gyn.*, Paris, July, 1910,) mentions a condition which may still further complicate the diagnosis. This condition he terms hemorrhagic pachysalpingitis and cites three positive and two somewhat doubtful cases. One of his observations is appropriate to what has been said regarding the incorrectness of the old view that some form of salpingitis predisposed to tubal pregnancy, though it cannot be claimed to be more than suggestive. One of his cases of hemorrhagic salpingitis was found to be complicated with tubal pregnancy involving the opposite, and otherwise normal tube.

DIAGNOSIS AT THE TIME OF RUPTURE.

The second stage is marked by pain, which is characteristic to the degree that its absence would pretty positively exclude extrusion of the embryo either by rupture or tubal abortion, and that the pain is usually sudden and severe. But, unfortunately, so far as can be judged from the statements of the patients, the pain is of the same character and subject to the same variations as in all sorts of other abdominal conditions, such as various tumors with twisted pedicle, inflammatory conditions of the pelvic organs, appendix and biliary passages, troublesome hernia of various kinds, etc.

Uterine hemorrhage, approximating in amount that from an ordinary three month's abortion, and appearing within twenty-four hours after the critical pain is also diagnostic, to the same degree and with the further qualification that both pain and uterine flow are compatible with an ordinary uterine abortion.

While ectopic gestation is necessarily accompanied by the formation of a uterine decidua, that is not necessarily spontaneously discharged, and, on the other hand, it may be discharged and may escape from the vagina and be thrown away very early, so that its absence does not warrant us excluding ectopic gestation, though, if found, it obviously constitutes fairly conclusive evidence of pregnancy somewhere.

Pain and hemorrhage are absent in about 6 per cent. of cases of ruptured or aborted tubal pregnancy.

With the greater or less aid of diagnostic signs and symptoms of pregnancy in general, or of rather unreliable signs pointing to ectopic pregnancy in particular, the diagnosis of tubal abortion or rupture must depend upon the sudden onset of pain, collapse, characteristic symptoms of internal hemorrhage, which, as stated, may not be present, the appearance of uterine hemorrhage within twenty-four hours and absence of the embryo and the presence of a decidua in the uterine discharge subject to the negative qualifications just stated.

To illustrate the diagnostic importance of uterine hemorrhage within the time limit of twenty-four hours, the following case is cited:

Mrs. H., aged 31, born in U. S., German, married eleven years, never pregnant. Two years ago, had a flow for a few days more than normal, but at a regular menstrual period. She was not examined, but "took medicine" for a couple of days and has had no further trouble until the present. She never even had pain during menstruation and the menses were regular and normal in every way.

Saturday, August 6th, while on a boat, she felt peculiar. In stepping off the boat, she felt very severe, sudden pain and collapsed. She received no medical attention at the time, but ordinary restoratives were administered, and she was taken home as soon as possible and was put to bed. Immediately, she felt so comfortable that it was considered unnecessary to summon a physician, but on account of a rather vague persistent distress, one was called on the following Thursday, August 11th. On examination, he found a distended, swollen abdomen, the uterus about normally placed, but a mass to the left, extending down into the posterior cul-de-sac. She was not flowing at this time. He was convinced that it was a case of ectopic pregnancy with rupture, and brought her to the hospital the following day. At this time, there was quite a copious, dark uterine hemorrhage without clots. The abdominal distension, sensitiveness and pain had markedly increased. The temperature and pulse were moderately elevated 100.4 and 110, respectively. On account of the delay in the uterine flow and the normal position of the uterus, I was convinced that the case was not one of ectopic gestation, but a tumor, either ovarian or fibroid of the uterus, with a twisted pedicle. The suddenness of onset would practically exclude the various inflammatory conditions mentioned. The tenderness was too diffuse for appendicitis or any analogous focal lesion. On operation, the case proved to be one of ovarian cyst with twisted pedicle. The subsequent progress was uneventful.

In contrast to the foregoing, the following case of ruptured tubal pregnancy may be cited:

Mrs. L., aged 19, mother of one child, two miscarriages, prior to the immediate case history. A little more than seven weeks previously, she passed a few days over the menstrual period, and, not wishing to continue the pregnancy, she visited some one who passed instruments, and, a few days later, she had pain and began to flow. At the end of a week of continuous flowing, she was curetted. Then, for about five weeks longer, she was treated for pelvic inflammation. This brings the history down to April 15, 1910, when she summoned Dr. Hugh S. Townsend, who immediately called me in consultation. Clots could be palpated in the cul-de-sac and this sign, in connection with the history, led to the diagnosis of ectopic pregnancy, while the lack of violent symptoms, in accordance with the rules for differentiation laid down by some authorities, favored the differential diagnosis of tubal abortion. The cul-de-sac was opened, the clots were removed and a gauze drain was inserted. During the following night the patient had terrific pain, requiring several hypodermatics of morphine. There was also a profuse hemorrhage. The next morning, I opened the abdomen, found the right tube ruptured at the isthmus and blood issuing from the site of rupture. The tube was removed, the toilet made and the patient recovered perfectly.

Obviously, in many instances, a positive diagnosis cannot be made, but, from the practical standpoint, we must be content with probabilities sufficient to lead to prompt operation. As stated and illustrated by the case just cited, I do not believe that it is possible to distinguish between tubal abortion and rupture, nor to locate at all exactly, the site of rupture.

It is also inevitable that, when rupture occurs early, with a small ovum, relatively undeveloped blood vessels in the wall of the tube, or when the ovum is extruded through a patulous ampulla, diagnostic symptoms may be lacking. The patient will believe that she has taken cold, or that an early uterine abortion is in progress, or merely that she is having a somewhat painful menstruation. Doubtless many such cases pass without operation, and, the internal hemorrhage not being of serious amount, complete abortion occurs. It is important, however, that the general practitioner, who is most apt to see such cases at the critical period, should have in mind the possibilities and should either demand operation as a precautionary measure, or, at least, should carefully watch the further progress, in order to guard against the danger of an undetected dribbling hemorrhage or a subsequent exacerbation. Sometimes, the patient does not call a physician at all or only after the lapse of days or even weeks, when, with the vague history due to inadequate opportunities for observation, still further delay ensues before radical relief is afforded.

DIAGNOSIS AFTER RUPTURE OR TUBAL ABORTION.

As already intimated, the history, while by no means to be neglected, may be vague, and,

in most cases, it has not the significance in many details formerly ascribed.

With the accumulation of blood in the abdomen, the hemorrhage being usually rather gradual, the uterus, unless held in place by adhesions due to a new growth or to a previous inflammatory condition, is lifted bodily upward and forward, until, in some cases, the examining finger must pass around the symphysis to find the cervix. I know of no other condition with a comparable history and course, which causes this condition. So long as the blood remains liquid, nothing can be felt in the cul-de-sac, but after clots have formed, a palpable mass is encountered, and the vagina may be nearly obliterated. I have noticed this condition as early as forty-eight hours after the critical pain, but in the case of a slow, dribbling hemorrhage, it may be postponed even for two or three weeks.

From a perusal of the literature, I am convinced that some authors fail to recognize the importance of a clear distinction of stages as already laid down. For instance, one writer states that twenty-nine out of thirty cases present symptoms by which a presumptive diagnosis may be made, prior to the patient's arriving at a crisis which is alarming. This expression ought to indicate the occurrence of rupture or tubal abortion. Yet, a little farther on in the same paper, he says: "I do not believe that I have ever chanced to examine bimanually a pregnant tube before any symptoms of the tragic stage have manifested themselves."

Similarly, another author claims that 95 per cent. of cases should be diagnosed before rupture, and then cites cases under the heading "before rupture" in which he has operated immediately after the appearance of pain, shock, etc., and has found the abdomen filled with blood. Obviously he has failed to distinguish sharply between the stages.

I scarcely need emphasize the fact that the third stage should be anticipated by prompt operation so that, whether the process involves the wall of the tube or the ampulla, the repetition of hemorrhage and the increasing danger of laceration of the tube should be prevented. Here we have a very practical reason for distinguishing between a second stage immediately at or closely following the extrusion or attempt at extrusion of the embryo, and a third stage following this process by an appreciable interval. Obviously, the greater the abdominal hemorrhage the longer will the lessened blood pressure delay the appearance of the uterine flow. So, too, the more diffusely the intra abdominal blood is spread over and between the coils of intestine, the less will be the chance of palpating clots in the cul-de-sac. Hence, while theoretically the second stage might be considered to occupy a mere point of time, the distinction of stages as described is important, both diagnostically and from the vitally important standpoint of prophylaxis of comparatively late developments.

Hematocele, when diffuse or solitary, is a favorable termination of ectopic pregnancy, for, even if left alone, it is gradually absorbed, and complete recovery results. Thorn, for example, has reported 157 cases with a single death—equivalent to about 0.6 per cent.—and Fehling 91 cases with no death.

The general indication for operative interference as promptly as possible, cannot, however, be gainsaid. Schanta, for example, after a careful study of the literature, collected 123 operative cases, with a mortality of 5.7 per cent. and 121 cases treated palliatively, with a mortality of 86.89 per cent., although in another series of more carefully selected cases, he found the mortality of palliative treatment to be only 65 per cent.

To recapitulate the diagnostic features:

1. There is sudden pain, nearly always, the exceptional cases being those with sudden collapse, as in two cases reported to the Keuka Lake Medical Association, July, 1909.

2. Uterine hemorrhage occurs within forty-eight hours after the initial pain. This symptom and sign is common to all cases of ruptures or aborted tubal pregnancy.

3. Add collapse and the diagnosis is complete. If collapse is lacking, or slightly marked, it is on account of gradual internal hemorrhage, when, on examination, the cul-de-sac will show a progressive bulging.

859 *Humboldt Street.*

The United States Civil Service Commission, Washington, D. C.,

Announces an examination, November 23, 1910, at points in the various States, to secure male physicians to fill vacancies in the Indian and Isthmian Canal services. Applicants must be under forty years of age.

TUMORS OF THE SCROTUM.*

By O. LEGRAND SUGGETT, M. D., St. Louis, Mo
Professor of Syphilology and Genito-Urinary Diseases, Medical Department, Barnes University, St. Louis, etc.

The anatomical relation existing between the scrotum and the inguinal region, especially the inguinal canal, is so intimate, and the interdependency that is brought out through the fact that some abnormal or pathologic conditions affect both simultaneously, or else the one becoming primarily the seat of the trouble, the other involved secondarily, renders a discussion of tumors of the former incomplete without the inclusion of those of the latter.

In no other location can tumors bearing so close a resemblance upon mere inspection, and differing so utterly in their respective importance and gravity, be found. This extreme difference which is often not apparent from the appearance of the tumors begins with their etiology and runs through their diagnosis, treatment and prognosis. An accurate and, at times, an urgent diagnosis is imperative. More than elsewhere, is a thorough knowledge of the gross, minute and especially the homological anatomy of the region absolutely essential to a successful diagnosis and safe treatment.

I have seen too many hernias diagnosed and treated as hydrocele, not to know this. Conditions *of* the scrotum, and those *within* the scrotum are to be differentiated. Various conditions of the scrotal tissue purely, are of such magnitude and nature as to render an examination of its cavity or contents unsatisfactory or impossible; for example—edema of the scrotum in connection with general anasarca or ascites, cysts within the scrotal wall, inflammation following contusions, numerous skin diseases, phlegmon, erysipelas and gangrene, angioma, epithelioma and other neoplasms, hematoma and finally elephantiasis scroti.

At other times, even though the scrotum is in no way affected, the nature of the tumor within it, is difficult to correctly diagnose. Occasionally, nothing short of opening the scrotum and making an ocular examination of its contents will determine its character. Even then, occasionally, the microscope has to be brought into requisition, for a final decision.

It would be a sad commentary indeed were you to emasculate a man by the removal of a syphilitic testicle which would have yielded to appropriate medical treatment, thinking it to be malignant. This I have known to occur.

A few differential points will aid in avoiding a mistaken diagnosis in some of the more important non-surgical, as well as surgical, conditions under consideration.

Referring again to tumors or diseases affecting exclusively the scrotal tissue—elephantiasis is perhaps the most curious, as well as most rare with us, being a tropical disease. Half of the adults of Samoa are said to be so affected.

The benign tumors of the scrotum are chiefly of cystic nature; whilst sebaceous cysts are of most common occurrence.

Serous cysts are rare. Dermoid cysts when occurring here are generally located in the center of the perineal junction with the scrotum and are the results of failure of the ectoderm to maintain its proper relation during the union of the genital folds, or to separation of the intestines from the urogenital sinus.

Sarcoma is unusual; carcinoma is comparatively frequent—occupations requiring the handling of coal and its products predisposing to it, chimney sweeps, for instance.

Coming now to the cord, we sometimes find an intra or extra vaginal hematoma sufficiently extensive to obliterate all contour and outline of the testicles; there is generally, however, evidence of injury or contusion of the scrotum or hemorrhage of the tunica vaginalis to aid you in not confusing it with an inflammatory condition of the testicle.

An acute sero-fibrinous periorchitis may follow slight injuries, especially if the patient has previously had an epididymitis. A point of difference between this and hematoma in the same situation is the slight temperature which is never wholly wanting in the former, but is rare in the latter.

Acute hydrocele of the cord or acute serous peri-spermatitis can only occur when a portion of the vaginal process remains pervious. It may be due to traumatism or be secondary to urethral bladder or prostatic inflammation. The chief symptom is sudden development of a tender, elastic tumor simulating strangulated hernia. Hydrocele of the cord must be differentiated from spermatocele which is never movable upon the epidydimis.

*Read before American Urological Association, St. Louis, Mo., June 6, 1910.

Chronic serous periorchitis or hydrocele is so common as to require but little mention. Its slow development, requiring from six (6) months to a year, its pear shape, with the small end up, its translucency and finally aspiration make its identification easy, save where thickening of the vaginal tunic or opacity of its contents has taken place. Its insidious onset without any apparent preceding exciting cause frequently makes its etiology puzzling to say the least. Very large hydroceles are occasionally complicated with hernia, which may be caused by its size and weight, dragging a pocket of peritoneum into the canal.

Occasionally also a hernial sac, freed of its contents and its neck or communication with the general peritoneal cavity becoming obliterated through the wearing of a truss or a plug of omentum, filling up with serum, simulates a hydrocele. A congenital hydrocele does not "gurgle" as does a hernia.

Proliferative periorchitis is important from the fact that sooner or later it leads to the loss of function of the organ. Calcification of some portion of the tunica vaginalis in this condition is not uncommon. It may be mistaken for orchitis, syphilis or tuberculosis of the testicle. Primary tumors of the membranes are rare, and although some authorities in describing them, say that "Lipoma may be so extensive and so soft as to be mistaken for a varicocele, or so hard as to be confused with an irreducible omental hernia," it seems that only one case of this variety in this situation is known (recorded by Dr. Parks of Buffalo, *Annals of Surgery*, May, 1886, page 365): Fibromata of the cord or tunica vaginalis have a tendency to undergo sarcomatous degeneration and should therefore receive early attention. Sarcoma may develop secondarily to an hematocele, and is to be partly distinguished by its lobular surface. In considering the differential diagnosis in syphilitic and tubercular testicle, which at times is by no means easy, attention is frequently called to the involvement first of the epididymis; in the latter, nodules along the vas deferens, and fistulæ are also characteristic. Concerning the first differential point, I will say that I have operated twice, quite recently, and a careful examination (by Dr. Gradwohl) showed no involvement of the vas or epididymis although the parenchyma of the testicle was liberally studded with tubercles, showing that the gland was primarily involved, a somewhat moot question.

The syphilitic testicle tends to purulent, caseous, or fatty degeneration. Many cysts of the testicle develop from the remains of embryologic structures, from the hydatid of Morgagni for instance; but of course cysts of the testicle are to be distinguished from cystic disease or cystic degeneration of such solid tumors as sarcoma or adenoma. Other tumors which a lack of space and time preclude more than a mere mention of are varicocele, epididymitis, orchitis, a dislocated or undescended testicle, teratoma, buboes, symptomatic and idiopathic, hernia, bubonocele and epiplocele. Among the rare forms of solid tumors of the testicle and epididymis are fibroma, enchrondroma, osteoma, myoma, lipoma and myxoma.

Most of these are benign, but may become malignant; with the possible exception of gumma of the testicle, carcinoma and sarcoma, take precedence in the matter of frequency.

A series of cases, eight (8) in number, in which I was compelled to castrate—in which cases I believe that this operation comparatively simple of performance; but formidable in significance—might have been obviated, was the incentive for this paper, and brings us to the gist of our text, "The early recognition and prompt treatment of hemorrhages into the substance of the testicle."

While I must acknowledge that the symptomatology or any part of it is far from pathognomonic, I would add that with an intense throbbing pain following immediately a blow or a strain and a feeling of distention of great fullness of the gland, that would not show any relief upon suspension or treatment ordinarily antiphlogistic, the possibility of a hematoma must not be overlooked. In such an event the testicle would be a trifle increased in size and most likely a strictly localized and circumscribed tenderness would be detected upon palpation, in contra-distinction to the diffused generalized painfulness of the entire gland incident to an epididymo-orchitis. There would be no sense of increased heat in the gland itself, nor an elevation of the general temperature. The pain, following such an injury, would quite likely be excruciating though this is not true of a hemorrhage occurring spontaneously, for in this instance the pain in my cases

has been very insidious, and did not become distressing until the exudation of blood had become sufficient to greatly distend the tunica albuginea, and the counter pressure of this unyielding membrane was brought into play. In a few cases where a hematocele was coincident, and had been opened by an incision into the vaginal tunic for its evacuation the surrounding and supporting pressure having been taken away from the tunica albuginea—this latter had ruptured at its weakest point and a gelatinous mass of clotted blood and seminal tubules was found protruding; but in the majority of my cases which were of long standing the secreting portion of the gland had broken down degenerated, and the tumor with the tunic intact was smooth and painful, varying in size from a large hen's egg to a goose egg, and upon incision was found to be a big cyst filled with clotted blood—no vestige of the tubules remaining.

Naturally in the beginning or at the very outset of the trouble unconditional rest in the recumbent position should have been demanded with proper elevation or suspension of the testicle, and the application of ice or cooling lotions and other measures calculated to check the hemorrhage and promote absorption of the already effused blood. These measures failing to give relief the tumor should be opened at its tenderest point with a small tenotome. In event of failure of this, which, by the way, should be done under the strictest aseptic care, the scrotum should be deliberately laid open and the bleeding vessel exposed and secured.

The possibility of a degree of permanent induration or possibly atrophy of the organ should be explained to the patient.

I have noticed as a point of difference between a hematocele into the cavity of the tunica vaginalis or a so-called "vaginal hematocele" and one into the glandular substance, if both have been of long standing, the walls of the former become quite thickened whilst those of the latter remained either unchanged or are thinned.

The hematoma may occur without any sign of extravasation into the scrotal tissues. For some cases the same injury produces a hematocele, also a hematoma, though in my cases the cavity of the tunica vaginalis was filled with serum, of the exudation of which I am in doubt, as to whether it preceded or succeeded the hematoma.

TREATMENT OF WOUNDS—SURGICAL DRESSINGS AND APPLICATIONS.

By L. SEXTON, B. S., M. D., New Orleans, La.
Professor of Minor Surgery, etc., Tulane University.

Under the title of surgical dressings, applications and treatment of wounds, we shall consider four types of common injuries incident to railroad or other surgery. To the young surgeon particularly, just what dressing or application is best suited to a given case very often comes up for decision; to help out in just such a contingency is the apology for this paper. Take, for instance, a lacerated and contused injury of the hand that is covered with machinery grease, oil, and impurities incident to a laborer's employment, shall we at the first dressing attempt to thoroughly cleanse and wash the part, or is the comfort and cure of the patient assured by any simpler method of treatment?

In speaking of removing the paint, dirt, and grease incident to machinery accidents, spirits of turpentine makes one of the best cleansing and antiseptic agents for removing such grease and oils that are so ground in as to be almost impervious to soap and water. There has recently come into vogue the application of diluted tincture of iodine to just such injuries as above alluded to, with results as good in many instances as the old plan of scrubbing with green soap, manipulating the parts and trying to get rid of materials that are practically ingrained into the tissues. In fact, the extensive scrubbing of very painful and lacerated wounds and injuries is giving away to less heroic washing and brushing at the first-aid treatment.

All such lacerated and contused wounds should first be freed from splinters or foreign bodies, which are often driven into the flesh when the injuries are received. A favorite method of removing these particles of dirt and at the same time helping to arrest the hemorrhage is by flushing the wound thoroughly with peroxide of hydrogen, which in oxidizing the blood boils out much of the dirt and infection, particularly if the tissue is freely flushed after the peroxide application, by pouring on sterile salt solution until the parts are thoroughly cleansed. A few silk-worm-gut sutures to approximate the edges of the wound are necessary; mopping the surface with tincture of iodine, diluted one-half, seems to prevent any infection from taking place in a great many injuries

of this kind. After the application of diluted iodine, the wound should be well covered with sterilized gauze, and, if the injury is very extensive, a padded splint should be applied to support the arm and fingers.

Another way of treating similar accidents has been to cleanse the wound thoroughly of all foreign material, then apply an abundant dressing of sterilized gauze and absorbent cotton, using the ordinary wooden or metallic splint, if necessary, but keepng the wound thoroughly soaked in one-half of one per cent. solution of carbolic acid, or 1 to 5,000 of bichloride of mercury solution for twenty-four hours. These applications will so soften up many of these calloused hands that they can be more thoroughly and easily cleansed at the second dressing. A patient can keep the hands so moistened by constant application of either of these solutions, or, if confined to bed, may leave his hand under an antiseptic drip.

The second dressing of such a case, after the hardened skin, and debris has been softened and gotten rid of, may be of the diluted tincture of idodine as suggested above; such a dressing enables the surgeon to determine in a few days what portion of the tissue is viable and what fragments need to be removed.

The second type of cases would be the inflammatory ones of staphylococcic and streptococcic infections, where suppuration or violent inflammation has taken place in the tissues before the surgeon has been consulted. The least handling or manipulating of such an injury, the better for the patient. Applications of dioxygen, while it may boil out the pus, may at the same time extend the inflammation by carrying the diseased germs on into other tissues not already involved. The hand and arm thus infected should be placed entirely at rest and covered with an abundance of gauze and cotton batting, which should be kept under a constant antiseptic drip for forty-eight to seventy-two hours. We will usually find the violent infection which almost threatens the integrity of the arm to become modified and circumscribed in its development, pain will have been much relieved and the useful member often saved by this simple process and constant moist antiseptic treatment.

Another very satisfactory and, at the same time, soothing dressing of the above variety of infections is the ordinary sugar of lead and tincture of opium lotion (sterilized) used by our fore-fathers. This application is astringent, cooling, relieves pain, and is very grateful to the patient.

It is needless to repeat that elevation and rest relieve throbbing pain and fever, and that it should be a part of all such treatment to inflamed extremities. As stated before, a large moist antiseptic dressing, the larger the better, at least five yards of gauze roll, and a pound of absorbent cotton for an acutely infected hand or leg, combined with absolute rest in bed (if it is the lower extremity), gives better results than any other form of application or treatment. Whether these infections come from puncture by nail, splinter, or machinery, it is immaterial. The point of entrance should be enlarged by a crucial incision under cocaine to remove any part of the foreign body remaining in the tissue. Diluted tincture of iodine should be freely applied in order to prevent any more absorption from the infected point. In such cases, you will find the lymphatics of the extremities, and in some cases the veins, acutely inflamed. Any examination or manipulation of the parts tends to spread the infection; any use of the hand or leg causes the germs to invade uninflamed tissue; if left to themselves, or with the ordinary small dressing, and the patient is permitted to walk about, or to use his hands, such inflammation of the extremities may result that the sheaths, tendons and muscles may slough away on account of the violence of the disease; large palmar abscesses or actual gangrene and death of the hand have been known to take place in some of the more violent processes; 103° fever, with delirium, is not an unusual constitutional symptom in such cases. After free purgation and actual confinement in bed, keeping the limb moist with any suitable antiseptic lotion, with perfect rest for two or three days, will often abate the fever and stop the process by the formation of a local abscess; or in other instances end it in complete resolution.

More depends upon the size and moisture of the dressing and rest of the part than in the kind of lotion that is used; there is practically little preference between the weaker solutions of carbolic acid, alcohol, and boracic acid, and in combining the three together.

Ichthyol—20 per cent. solution, or ointment—

is a favorite ingredient in the prescriptions of nearly all dermatologists in dry inflammatory skin diseases; outside of the odor, which is objectionable, it seems to act almost specifically in some of the streptococcic or erysipelatous inflammations. Oxide of zinc ointment, carbolated vaseline, balsam of Peru and castor oil (sterilized), in fact, any oily dressing modifies the heat and burning pain of such an inflammation and is, therefore, very soothing to the patient. Wherever ulcerated borders are to be drawn together and exuberant granulations are to be pressed down, there is nothing acts quite so well as the non-irritating zinc oxide plaster applied in inch strips over the ulcerated surface. Take two given ulcers of about the same intensity, the one treated with the zinc oxide plaster applied every third day, after having been thoroughly cleansed by any of the mild antiseptic lotions, and you will find that the ulcer so treated will heal more rapidly than when treated by the usual methods of antiseptic dressings and powders without the use of the plaster. We had this forcibly brought to our attention at the Charity Hospital in New Orleans in cases at the outdoor clinic, whose ulcers were dressed every other day by the different methods commonly used to heal them. Of the many surgical dressings, so-called, we have practically excluded all except the sterilized gauze and absorbent cotton. These materials should be used freely and if the patient is exposed to infection, or there is much pus to be absorbed, they should be reinforced by cotton batting, or large amputation pads, made of crinoline and absorbent cotton combined.

Many of the proprietary antiseptic powders that are put on the market at a very expensive price to the consumer have as their principal ingredient some form of iodine; the question the surgeon would naturally ask is, can we get equally good results by using the diluted tincture of iodine, which combines more easily with the secretions coming in contact with the minutest recesses of the injury, and at much less cost to the patient than by using the much lauded and advertised proprietary remedies. Much of the pain incident to removing dry dressings, which have been applied to inflamed surfaces, can be mitigated and the application removed more easily if the first dressing is made with any of the antiseptic oils or ointments which the individual surgeon has been accustomed to using.

Wherever we have large raw surfaces to heal by granulation, and where a great deal of suppuration has taken place, it becomes necessary to keep the pus washed away by sterile saline solution or some very mild antiseptic, as bichloride 1-10,000, before any permanent dressing is applied. It is also desirable in many of these extensive injuries, as from burns, to change the dressing daily, and very often to change the plan of treatment from moist to dry. Many of these extensive granulating surfaces, after being thoroughly washed off, seem to do well under any dry antiseptic dusting powder, as subnitrate of bismuth, oxide of zinc, boracic acid, mixed in equal parts. It has been contended that these and other dusting powders are harbors for germ development, but under their application, we have seen an artificial scab form under which the wound heals most naturally.

In the majority of such cases unless the suppuration is very free, we make a mistake by dressing them too often. Every other day, as a rule, and occasionally left for longer periods, if the wound is not suppurating too freely, is as often as these cases should be disturbed. It is equally true that the usual antiseptic wash or solution is used too strong, and that while we are trying to destroy the pus germs by these stronger antiseptics, we are at the same time destroying the new epithelial tissue by which these wounds are covered. In the dressing of a surface, which we have made raw, as in skin grafting, such powders are entirely superfluous, as with one application of the sterilized gauze, if left undisturbed for a week or ten days (if infection does not take place), we will usually find a perfectly dry and healed surface when the gauze is removed.

Conclusions.—Unless wounds are suppurating very freely, as a general proposition, they are dressed too often.

Peroxide of hydrogen injected into cavities and sinuses often carry the infection further into uninvaded tissues. Peroxide is also too strong to apply pure to newly healed tissue.

Sterilized gauze without dusting powder is sufficient protection for any clean surgical wound.

Sterile water, saline solution, or very dilute

antiseptic solution should always be given preference over the stronger antiseptics, which, in destroying the pus cocci, at the same time destroy the new epithelial tissue by which granulating wounds are covered.

There is no better protection against infection than the free application of large sterilized pads or dressings with which they should be abundantly covered.

Absolute physiological rest by a properly applied splint, or confinement in bed, is a great time saver in the healing of wounds.

Silk-worm sutures are much less likely to produce stitch abscesses, and should be given the preference over cat-gut wherever practicable.

Zinc oxide plaster has a wider field of usefulness as a surgical appliance than has been given to it.

In redressing wounds, all materials should be thoroughly softened by warm sterile water before the dressing is removed.

THE HISTORY OF ELECTROCUTION IN THE STATE OF VIRGINIA.*

By CHARLES V. CARRINGTON, M. D., Richmond, Va.
Assistant Professor of Surgery, University College of Medicine (Rectal Diseases); Surgeon to the Virginia Penitentiary; Surgeon to the Spring Street Home, etc.

Your Secretary has very tactfully assigned my paper on electrocution—death by electricity—for the last one of the Norfolk meeting. Our meeting has been delightful in a social way and full of helpful talks and papers on instructive subjects to us all, and now in a closing talk I shall endeavor, in a brief way, to give you a short account of electrocution as judicially administered in our State. This is a gruesome subject, and very solemn and fearful in its every detail. I think every doctor should have some knowledge of how an electrocution is managed in the penitentiary, how the subject (the criminal) is prepared for electrocution, and how swiftly, solemnly and decorously the orders of the courts of the land are carried out.

Electrocution, the means of inflicting the death penalty instead of hanging "by the neck until he is dead," became legal in Virginia on July 1, 1908, by special act of the Legislature. This was a great step forward. Hanging was an awful proposition, so horrible in its sickening details that one shudders to recall the dangling, struggling, strangling figure, for death by hanging generally meant a matter of fifteen to twenty minutes of sickening horrible contortions before the subject was pronounced dead. Then the preamble to a hanging was of the most trying nature and very often tended to make the subject a hero, permitting him to address the assembled crowd, forgive his enemies, sing some beautiful hymn, like "Nearer My God, to Thee," which we all have tender association with, and then go off in a blaze of glory. This scene as depicted above was actually attractive to certain classes of our population. A negro likes nothing better than to be the central figure, be it a cake-walk or a hanging, and I have known the hanging of a negro rapist to be pulled off exactly as depicted above.

An electrocution, on the other hand, is a swift, solemn and withal humane way of inflicting the death penalty. It is all over in about sixty to seventy seconds. I have been often asked, "How much of his head is shaved" and "if he fought and struggled much." There is absolutely no physical preparation necessary, or made, and I never knew a single one of the thirty-odd I've seen electrocuted do a thing but meet death calmly and without flinching. It is so quickly over, so swift in its every detail the subject does not have time to weaken or wilt.

By law, the subject is required to be in the death chamber of the penitentiary fifteen days before the day of his execution, and from that day until his death he is never from under the watchful eye of a guard. He has all the spiritual preparation and consolation that godly men of his Church and religion can give him, and their ministers, white or colored, are untiring and unceasing in their ministrations. When the day for execution arrives the order of the court is usually carried out in the early morning, about 7 o'clock, after breakfast, and most of the subjects eat a good breakfast, too. I recall one negro who the day before his execution asked especially for some "haslet stew" for his breakfast on the day he was to be electrocuted. We almost had to kill a cow to get those haslets; they were, after much trouble,

*Read by title before the forty-first annual session of the Medical Society of Virginia, held at Norfolk, Va., October 25-28, 1910.

gotten and prepared as requested. John ate heartily of the stew and in a few minutes shuffled off this mortal coil.

The exact details of an electrocution are as follows: When the fateful day arrives the jury of six or more citizens are brought into the death chamber; the attendants, five or six, the electrician and the surgeon are all assembled near the chair—just an innocent-looking oak chair setting on a rubber mat. The chair is equipped with proper straps and buckles for fastening the subject in, and each attendant has, and knows, his special duty to perform. A head and a leg electrode are used; they are of copper and lined with a thick, flat sponge. The electrodes we use were designed by Mr. White, our State Electrician, and are especially adaptable to any size head or leg; and by reason of their clever construction with springs and counter-springs, do away with all straps and buckles, thus assuring very rapid and snug adjustment.

In the death cell, after the last prayer is said, the short order of the court for the execution is read to the subject, and then with a guard on each side of him he is quickly marched the six or eight steps into the death chamber up to the chair. It takes an average of sixty seconds to adjust the straps to the chair and the electrodes securely. At a signal from the surgeon, when all this is properly fixed, the current is switched on and maintained unbroken for about sixty seconds. Although the current is never broken it is varied in intensity during these sixty seconds, as follows: Beginning at maximum, which is held for three to five seconds; then slowly during about twelve seconds cut down to minimum; held at minimum for three seconds; then slowly during about twelve seconds carried back to maximum; held there for three seconds; then back again to minimum during twelve seconds; held again for three seconds; back during twelve seconds to maximum; held there three seconds; then broken and cut off entirely; thus we see that sixty-odd seconds have been consumed for preparation, and sixty-odd seconds in carrying out the orders of the court to inflict the death penalty.

I have spoken of maximum and minimum points of the death-dealing current. The electrical mechanism or machine is so arranged that the current has from ten to twelve amperage and cannot give a current of higher voltage than eighteen hundred to twenty-two hundred. So the maximum referred to above means, say, 2,200 voltage, and the minimum means 200 voltage. After the current is cut off the heart action for a few seconds is tumultuous, churning violently. This most quickly slows off and in a few more seconds the subject is pronounced dead. He died from shock, paralysis of the respiratory centers and of the heart.

There have been post-mortem findings in which the right side of the heart has been ruptured, owing to the violent contractions of the heart muscle, but under our State law the surgeon is not permitted to perform a post-mortem, so this paper will not deal with any such findings here.

The temperature of the body is enormously elevated after electrocution, sometimes reaching 115 degrees. Rigor mortis sets in unusually early.

You can see from the above account what a swift performance an electrocution is, and I can assure you that it is one of the most solemn, awe-inspiring acts any one can take part in. I have witnessed thirty-odd during two years and the last one was just as fearful in its solemnity as the first one. I hope, and believe, that the solemn judicial inflicting of the death penalty by electrocution in place of the more or less spectacular hanging, will have a powerful deterrent effect on the criminal classes.

932 *Park Avenue.*

Department Of Analyses, Selections, Etc.

CONDUCTED BY
MARK W. PEYSER, M. D., RICHMOND, VA.
Secretary Richmond Academy of Medicine and Surgery, etc.

The Relationship of Neurology to Preventive Medicine.

Joseph Collins, New York, after speaking of the neurologist's duty in dealing with prevention of poliomyelitis, epidemic cerebrospinal meningitis and occupation diseases, said it was also his privilege to attempt to overcome certain incapacitating mental states. The psychoneu-

roses furnish the subjects for supernaturalism in therapy, such as Eddyism and Emmanuelism, and the quack fattens upon them. We do not successfully combat them because we do not prevent them; and we do not prevent them because we do not know their cause.

He stated that Freud's theory has opened up a wider vista into the delicate and hidden connections between the erotic element and nervous disease, his explanation of functional neuroses as the result of suppressed sexual desires having fallen like a bombshell into this ear of sexual hypocrisy; and his ruthless application of the so-called sexual symbolism in all cases has naturally led to a strong, though by no means universal, reaction against the proposed remedy, psych-analysis.

Under favorable circumstances, the sexual instinct may be sublimed, that is, directed toward a spiritual instead of a carnal goal. It is then devoted to the amelioration, rather than the propagation of species. But it is only the direction of the desires that is changed, not their strength; and unless a certain measure of direct sexual activation be left, the sublimation will lead to disease.

Psychoneuroses are the price of sublimation, the negative of the perversions, according to the teachings of Freud. The self-indulgent, who compromise between desires and gratification, are often blessed with iron "nerves," whereas the would-be ethereal and sexless are proverbially high-strung and nervous.

Hysteria, according to Freud's interpretation, is the result of the conflict between the sexual desire and sexual suppression. The symptoms have the value of compromises between these two psychic currents. The sexual desire is confronted with internal resistance, notably modesty and physical aversion. Sexual abstainers accumulate a mass of unassimilated memories, suppressed reminiscences and converted emotions. In the course of time, the original feelings are blurred and finally vanish from the realm of consciousness, to become replaced by the familiar hysterical symptoms of globus, palsies, fits, etc. Provided the source of the disturbance can be reached, the suppressed emotion will find its natural solution, and the symptoms will disappear. Having a sexual etiology, hysteria is never associated with innocence of thought, and hence the danger of corruption does not exist. Being of psychogenic origin, the disease requires fundamentally psychic measures for its control. The symptoms must be literally reasoned away. The hysteric, beyond the boundary line of psychic equilibrium, cling so tenaciously to the desire as to renounce peace and happiness, preferring silence to confession. They exhibit an exaggerated tendency to sublimation, but their symptoms are abnormal sex manifestations.

Other psychoneurotic states, which are mainly due to sexual abstinence, or rather, suppression, with or without masturbation, are the phobias and obsessions. The pathologic condition is, again, the outcome of the disproportion between the sexual demands and the sexual suppression.

Collins concludes by saying he is not at all sure that we physicians, as a class, take the trouble to acquaint ourselves as intimately with the principles of sex physiology as we should, and, of course, we cannot expect to teach that which we do not know, and we should not permit ourselves to get a knowledge of it while teaching, because the experiment is too dangerous to those with whom we are dealing. It seems to the writer that plain, wholesome lectures on sex physiology given to small classes and, in many instances, individually, should be a part of the curriculum of every public and private school, and that these lectures should be given by physicians, men and women, whose sanity, honesty, earnestness and ability have been testified to or vouched for by their appointments from the executive medical officer of boards of health. (*Journal A. M. A.*, October 15, 1910.)

Report of Fifteen Cases of Hymenolepis Nana.

Bass and Gage, New Orleans, state that they report these cases to further emphasize the fact that infection with this parasite is common in the Southern States which bears out Stiles's prediction. All were found while making routine examinations—five among 315 students of Tulane University; eight among 130 inmates of an orphan home; two among 132 specimens of feces from patients during the past twelve months. Of the first series, two of the patients, who had very few eggs in their stools, had never had noticeable symptoms; the other three had had severe symptoms several years previous. Two had had convulsions from three to five

years ago, and at the time the eggs were found still had mild symptoms.

Of the second series, two of the children are said to have had convulsions and two others are small for their ages. No definite symptoms traceable to the infection were recorded in the other four. Of the last series, one, a young man, twenty-six years old, had consulted many physicians during the past six years for various digestive and nervous troubles. Among the diagnoses made were gastritis, appendicitis, nervous prostration, neurasthenia, melancholia, and epilepsy, though no definite convulsions had occurred. The other patient had suffered from melancholia and night terrors but nothing definitely indicating intestinal parasites.

It should be mentioned that most of these cases were diagnosticated by examining centrifuged specimens of feces, and would have been missed if only the ordinary technique for examining feces had been followed.

The authors wish to emphasize a point mentioned by Stiles and which it appears has been neglected. After an anthelmintic, the worms are often broken up into small fragments and are not visible to the naked eye. It often happens that a careful search fails to reveal the presence of a single worm, and one might be led to believe the anthelmintic had not been effective; however, microscopic examination of the mucus will usually show fragments of many worms.—(*N. Y. Medical Journal,* October 15, 1910.)

Catgut Treatment in the Radical Cure of Hydrocele.

E. S. Breese, Dayton, says (*Medical Brief*), that Lawrence, of East Berlin, Conn., has revived a method whose originator he is unable to discover. It consists of evacuating the fluid in the usual way and inserting into the hydrocele sac a piece of sterile catgut. This sets up sufficient reaction to cause obliteration of the sac. It is applicable to all conditions of chronic hydrocele, single, double, multilocular and hydrocele of the cord. The technic is as follows: The usual rules of asepsis and antisepsis must be observed. Anesthetize the site of puncture by injecting a few drops of 2 per cent. cocaine solution (Schleich's solution No. 2), or by freezing with chloride of ethyl spray. Tap the hydrocele, using a trochar and canula one-eighth of an inch in diameter. Carefully evacuate all of the fluid. Insert through the canula ten inches of sterile catgut No 2 for an ordinary case, or ten inches of No. 3 for a case with thickened sacwalls due to repeated tapping. Push the end of the catgut through the canula with a blunt wire or probe. Remove the canula, seal the puncture in the skin with a drop of collodion and insist upon the patient keeping quiet for twelve hours. At the end of this time he can resume his duties.

Hard, painless, opaque swelling of the scrotum to half the size before tapping follows. This disappears in from four to six weeks, leaving the scrotum normal. If the operation is performed on Saturday afternoon or Sunday, a working man loses little, or no time. The writer states that he has employed this method in six cases with 100 per cent. of cures.—(*Office Practitioner,* September, 1910.)

Etiology and Rational Treatment of Chronic Constipation.

Bernard Kohn, of Philadelphia, gives the following classification of the causes of chronic constipation: A. Organic or mechanical: 1. Chronic sigmoiditis or proctitis. 2. Obstruction of bowel by stricture, neoplasms, adhesions, volvulus, etc. 3. Foreign bodies, hepatic or intestinal calculi. 4. Malformations of colon, sigmoid or rectum. 5. Enteroptosis. 6. Fecal impaction.

B. Functional causes: 1. Atony of colon. (a) Sedentary habits; (b) irregularity of stool; (c) advanced age; (d) relaxation of abdominal muscles. 2. Impairment of secretions. 3. Intestinal spasm. 4. Increased digestion and absorption of food. (a) Improper diet; (b) hyperacidity of gastric juice. 5. Drug and enema habit. 6. Psychic influences. (a) Fear of pain in local inflammations; (b) cerebral excitement or preoccupation.

Commenting on the functional causes, the author says that atony is too often assumed as the cause of constipation. The most frequent and important factor in the etiology is to be found in the character of the diet. It has been found that in the so-called atonic forms, the bulk of the feces in proportion to the amount of food ingested is considerably diminished and that the bacterial content of these feces is also

comparatively small. More animal and less vegetable food is eaten to-day than formerly, while the products of vegetable fermentation excite peristaltic movements more strongly than do those of animal decomposition. The modern preparation of food, which stimulates secretion of the digestive juices, tends to produce a more complete absorption, leaving but little residue to act as a stimulus to the lower bowel. The combination of gastric hyperacidity with constipation is a well-known development of these conditions, and although the constipation is often cited as the cause of the latter, this is probably reversing the true state.

Treatment should be based on the cause. The writer deduces that the regulation of diet and the use of certain dietary adjuncts are the most rational means of curing the ordinary case of constipation. Patients are advised to eat abundantly of those foodstuffs containing the most cellulose, which is affected very slightly by the digestive juices. Such foods are the green vegetables—spinach, tomatoes, the cabbages, celery, onions, the tubers, etc.; and the various fruits with their skins—apples, pears, peaches, plums, berries, etc. At least six to eight glasses of water are to be taken daily, and a regular time established for the attempt to empty the bowels. These measures proving insufficient, others must be added with the view of increasing the residue in the large intestine. After stating that agar-agar, paraffin, saw-dust and linseed oil have been recommended by various writers, the author gives the following as a cheap and efficacious means of combating chronic constipation:

Two cups clean sweet bran.
One cup white flour.
One teaspoonful salt.
One and one-half teaspoonfuls baking powder.
Three tablespoonfuls molasses.
Milk.

Mix the bran, flour, baking powder, and salt thoroughly, then add the molasses, and enough milk to produce the consistency of mush. The milk must be cold when added. Put the mixture into a gem pan and bake in a slow oven (not over 245°F.) for one hour.

One, two or three of these cakes a day will immediately cure many of the most obstinate cases of simple constipation, and will frequently help to establish a regular habit that remains permanently with the patient after the bran treatment is discontinued. This holds good even in cases addicted to the drug and enema habit, but the treatment is contraindicated in constipation accompanying atony and dilatation of the stomach.

Where these do not suffice, cascara, fifteen to twenty drops or more, may be given once or twice daily, the dose being gradually diminished and finally omitted as the bowel movements become regulated.

When hyperacidity accompanies chronic constipation, the latter often disappears as the former is corrected. The requisite dietary regulation may be accompanied, for this purpose, by sodium bicarbonate, or in more obstinate cases by the use of the mildly laxative antacids—magnesium oxide, milk of magnesia.

In the comparatively rare cases of spastic constipation, the treatment is the reverse of the foregoing. The diet must be unirritating. As the patient is frequently neurotic, nutrition must be improved, and fats not only fulfil this indication but also act as lubricants to the intestinal canal. High enemas of oil have also been found valuable here, and therapeutic measures of a sedative character are to be employed.—(*Therapeutic Gazette*, Oct. 15, 1910.)

Book Notices.

Symptomatic and Regional Therapeutics. By GEORGE HOWARD HOXIE, A. M., M. D., Professor Internal Medicine and Dean, Clinical Department, School of Medicine of University of Kansas. **With fifty-eight illustrations in text.** New York and Lodnon. D. Appleton & Co. 1910. 8vo. 499 pages. Cloth, $4 net.

This is a book which, after careful examination, the general practitioner cannot well afford to be without. It is a work on Practical Therapeutics, in reality serving better than any treatise we know of the daily wants of the doctor, though it does not pretend to cover the whole field of pharmacology. It treats of the relief of symptoms, and those conditions for which prescriptions have to be given to mitigate pain, cough, etc., while yet the diagnosis of the disease is being made; and then points out the best line of treatment for the diagnosed disease. It requires an examination of its pages to recognize its merits. Much credit is awarded to Messrs. Parke, Davis & Co. for their valuable additions to the list of remedies, and the excellent, standardization of their preparations. We are glad to see that Buffalo Lithia Water is recognized as a valuable one because of the calcium and sulphates the water contains. A good index is appended to the book.

Editorial.

Medical Society of Virginia.

The forty-first annual session of the Medical Society of Virginia, held at Norfolk, October 25-28, 1910, passed into history—certainly from the standpoint of entertainments furnished, and, we should say, from the number of interesting papers presented—as a most noteworthy success. There were 371 doctors registered as in attendance during the meeting, although there were undoubtedly a number present who overlooked attention to this matter. Seventy-nine applicants were elected to membership, thus leaving a relatively small proportion of elligible Virginia doctors not members.

Too much praise cannot be given the Local Committee of Arrangements, Dr. Wm. L. Harris, chairman, for the manner in which they looked after every detail for the comfort of the visiting profession, and the hall provided for the meetings at the Monticello Hotel could not have been excelled.

The president, Dr. E. T. Brady, in his annual address, which appears in this issue of the *Semi-Monthly,* "touched upon subjects which are unusual in a public address," but which merit greater consideration than is commonly accorded them by either the public or the profession.

Following the president's address, Dr. Nat. T. Dulaney, of Bristol, Va., gave a talk on "The Doctor in Song and Story," and his speech, scintillating with wit, was the hit of the meeting.

In the absence of the secretary, Dr. Landon B. Edwards, the president appointed Dr. Charles M. Edwards acting secretary.

Dr. L. F. Barker, Professor of Medicine at John's Hopkins University, Baltimore, was present as an invited guest, and read a most instructive paper on the "Treatment of Some Forms of Failing Heart." Dr. L. D. Mason, of Brooklyn, registered as Fraternal Delegate from New York; Dr. S. T. Earle, of Baltimore, as Delegate from Maryland; Dr. H. T. Bahnson, of Winston-Salem, as Delegate from North Carolina, and Dr. Tom A. Williams, from Washington, D. C.

The Legislative Committee, besides being given additional duties, was authorized to continue its work looking to the Repeal of Special License Taxes on Doctors.

Pursuant to the request of Dr. W. D. Turner, Chairman of the Membership Committee, it was decided that worthy delinquents be reinstated to membership through the regular channels by payment of $5 on or before February 1, 1911.

The question of establishing a permanent home for the Society and a fixed place for annual meetings was deferred, it being considered not advisable nor practicable to take such step at this time.

The Committee appointed with instructions to report on the advisability of increasing the annual dues recommended that these remain as at present, and this recommendation was adopted, the dues continuing at two dollars.

Certain recommendations as to revision of the by-laws were adopted. These changes pertain chiefly to redistricting the State into fifteen districts, and call for one councilor from each district. The new order of things requires that "The terms of all councilors who are in office at the beginning of the meeting of the Society, 1912, shall expire immediately after the election at that meeting when the terms of the fifteen district councilors-elect, the office of councilor-at-large being abolished, shall begin * * *."

The report of the Executive Council was adopted as a whole, there being practically no discussion as to the recommendations or nominations made. The following officers and committees were elected for the ensuing year: *President,* Dr. O. C. Wright, of Jarratt; *Vice-Presidents,* Drs. Jos. T. Buxton, Newport News; R. M. Wiley, Salem, and McGuire Newton, Richmond; *Secretary,* Dr. Landon B. Edwards, Richmond; *Treasurer,* Dr. R. M. Slaughter, Theological Seminary; *Judiciary Committee,* Drs. Hugh M. Taylor, C. T. St. Clair, George J. Williams, Leigh Buckner, C. T. Parrish, Hugh McGuire and Reid White; *Membership Committee,* Drs. W. D. Turner, M. W. Peyser, W. F. Driver, J. Bolling Jones and W. W. Chaffin; *Legislative Committee,* Drs. Geo. A. Stover, H. Stuart MacLean, J. Wilton Hope, J. H. Ayres and W. B. Payne; *Necrological Committee,* Drs. J. W. Ayler, S. T. A. Kent and W. A. Bell. Dr. Clifton M. Miller was chosen as the third Delegate to the American Medical Association.

Richmond will be the next place of meeting, beginning the fourth Tuesday during October, 1911.

The *Subject for General Discussion* will be *Typhoid Fever,* sub-divided as follows: *Sources of Infection,* Dr. E. G. Williams; *Symptoms and Diagnosis,* Dr. J. J. McCormack; *Treatment,* Dr. R. T. Styll.

Dr. J. S. Irvin, of Danville, was elected Councilor for the Fifth District; Dr. Hunter H. McGuire, of Winchester, Councilor for the Seventh District, and Dr. Samuel W. Maphis, of Warrenton, for the Eighth District.

Three Councilors from the State-at-Large were elected as follows: Drs. R. S. Griffith, of Basic City, and Edward McGuire and C. V. Carrington, both of Richmond. With the exceptions here noted, the Executive Council will be the same as last year, Dr. S. A. Hinton, of Petersburg, being selected to act as chairman of the reorganized Council.

Honorary membership was conferred upon the retiring president, Dr. E. T. Brady, of Abingdon, Va., as well as on Dr. H. T. Bahnson, of Winston-Salem, N. C.

Report of the Norfolk meeting would, indeed, be incomplete without mention of the splendid receptions given by Drs. Southgate Leigh, Stanley H. Graves and James H. Culpepper, and by Drs. Kirkland Ruffin and Lomax Gwathmey, as also the delightful oyster roast at Cape Henry by the doctors of Norfolk. These affairs, as may be imagined, added very materially to the pleasure of the visiting doctors, and were much appreciated by all present. Numerous clinics were likewise provided at the Sarah Leigh and St. Vincent's Hospitals, both hospitals giving clinics in the early morning hours.

The Association of Military Surgeons of the United States

Convened in their nineteenth annual session in Richmond, Va., October the thirty-first, Lieutenant-Colonel Joseph K. Weaver, of Pennsylvania, presiding. With the addition of a number of members received at this meeting, the Association now has a membership of over five hundred, about one hundred of whom were in attendance. Lieutenant-Colonel G. S. Rennie, of Canada; Dr. D. Routte, of France; Colonel Dr. E. Gurado Gama, of Mexico, and Colonel Dr. Yau and Major Dr. King-chang Liang, of China, attended as delegates from their respective governments, and official badges were conferred upon them, making them corresponding members. A program of fine papers on technical subjects was presented by members as well as the foreign delegates. The general run of papers referred to public health matters, and the prevention, rather than the treatment of infectious diseases. A paper of especial interest to the general public was that presented by Major Louis Livingston Seaman on Africa, his experiences being made intensely real by the use of stereoptican views.

Numerous entertainments had been prepared by the local committee, and the visitors seemed to thoroughly enjoy the hospitality extended them and their families. The Association will meet next year in Milwaukee. Brigadier-General George H. Torney, surgeon-general of the United States Army, was elected president, and Surgeons Chas. P. Wertenbaker, W. C. Braisted, and Colonel Chas. Adams, vice-presidents. Majors Chas. Lynch and Herbert A. Arnold were re-elected to their former offices of secretary and treasurer, respectively. An unusually pleasant feature of this meeting was the presence of a number of former Virginians, or graduates of Virginia Medical schools.

Dangers from Disease Germs Through Mails.

Apropos to some recent experiences in the Richmond, Va., post-office, we take this opportunity to again notify doctors that State Health Commissioner Ennion G. Williams, or local health officers, are prepared to furnish "containers," made in accordance with postal regulations, for the transmission of germs and bacteria through the mails.

It is plainly evident how much harm might be done by the improper conveyance of germs, and cases of contagious diseases are often traceable to carelessness on the part of doctors, though numerous warnings have been sent out by the State Health Department. A heavy fine is imposed by the government for the violation of this order, and we hope "a word in time" will be sufficient to keep doctors from coming under its ban.

Dr. James Morrison Bodine.

As a token of their affection, and in appreciation of the devotion of his energies to the cause of medical education, the many friends and

pupils of Dr. Bodine, throughout the country. have decided to tender him a "testimonial dinner" on December the sixteenth, the anniversary of his eightieth birthday. Having been Dean and President of the Faculty of the University of Louisville Medical Department for forty-five years, he richly merits this tribute in his honor. The chairman of the invitation committee, Dr. I. N. Bloom, Louisville, Ky., announces that he would be pleased to hear from any friends whom he has been unable to reach, and who would wish to participate in this testimonial.

Doctors and Nurses Wanted in the Missionary Field.

The Student Volunteer Movement for Foreign Missions announces that more than fifty physicians, both men and women, and twenty-six trained nurses are needed to fill important posts in the Orient and other foreign countries. Travelling expenses and comfortable support are provided by the missionary societies making the appointments.

Particulars regarding the work, qualifications, terms, etc., may be secured from Mr. W. B. Smith, Acting Candidate Secretary, 125 East 27th Street, New York.

Army Medical Corps Examinations:

Preliminary examinations for the appointment of first lieutenants, to fill the large number of vacancies in the Army Medical Corps, will be held at various points throughout the United States, January the sixteenth. The "Surgeon-General, U. S. Army, Washington. D. C.," will furnish full information as to requirements for securing an invitation. Applications will have to be in his possession on or before January the third.

Sarah Leigh Hospital Clinics.

During the recent meeting of the Medical Society of Virginia in Norfolk, through the courtesy of Drs. Southgate Leigh and Stanley Graves, a series of more than twenty surgical clinics was presented at the Sarah Leigh Hospital. The hour chosen was so early in the morning as not in any way to interfere with the sessions of the Society, and a large number of doctors were in attendance upon both occasions.

Dr. Roy K. Flannagan,

Of Charlottesville, who was appointed director of inspection work of the Virginia State Health Department, assumed charge of his duties November the first, with headquarters at Richmond. Among his other duties, Dr. Flannagan will inspect the hotels and railroads of the State, in accordance with the regulations of the State Board of Health. As the former chief health officer of Charlottesville, he is especially fitted for this position.

Dr. W. Brownley Foster,

Of Richmond, Va., for several years connected with the health department, has resigned his position to become chief health officer of the city of Roanoke, Va. The vacancy created by Dr. Foster's resignation, has been filled by Dr. C. C. Hudson, who since his graduation from the University College of Medicin,e has been an interne at the Retreat for the Sick, Richmond, Va.

The South Piedmont Medical Society

Will hold its next regular meetng at South Boston, Va., November 15th. Drs. A. R. Shands and Tom A. Williams, of Washington, D. C., have accepted invitations to read papers. Dr. Samuel Lile, of Lynchburg, is president, and Dr. George A. Stover, of South Boston, secretary.

The Augusta County Medical Association

Held its quarterly meeting in its library, November the second, under the presidency of Dr. M. J. Payne. Preceding the reading of papers, clinics were held at the several hospitals in Staunton, and the annual banquet followed the afternoon session. A number of interesting papers were presented.

Messrs. Eli Lilly & Co.

Announce that Dr. C. C. Haskell, of the research department of their laboratories, has returned to his office in Indianapolis, after an absence of three months studying infants' diseases in the hospitals of New York City.

Obituary Record.

Dr. Thomas B. Lane

Died at his home in Mathews county, Va., October 20th, at the age of seventy years. He graduated from the Medical College of Virginia in 1860, and for many years has been prominent and beloved as a physician and citizen in his county. At the time of his death he was an honorary member of the Medical Society of Virginia, and superintendent of public schools in Mathews county. His widow and several children survive him.

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Original Communications.

DISEASES THAT A MUNICIPALITY CAN CONTROL AND HOW TO DO IT.*

By ROY K. FLANNAGAN, M. D., Richmond, Va.

President Virginia Conference of Charities and Corrections; until recently Health officer of Charlottesville, Va.; Director of Sanitary Inspection for Virginia State Board of Health, etc.

Doubtless there are among you, as in every audience, those who believe that there is little that the present can show that is in advance of the old ways—that the way your parents brought you up was the best possible way; the method pursued in your education was better by far than the new-fangled systems of to-day, and even the diseases that you had in your childhood, so providentially inevitable, were good for both body and soul.

This point of view is by no means novel, since Noah (to go no further back) experienced something of it in the men of his time, and the Progressive of to-day still finds the Reactionary at his elbow performing his irritating function.

David Harum said "that a reasonable amount of fleas are good for a dog; it keeps him from brooding over being a dog."

To each of you, then, who sees but little good in the scientific discoveries of this age, and even less good in the application of them to the solution of the problems of to-day, I wish, in the name of progress, to acknowledge the debt that is due in the stimulus you have furnished to active endeavor. You have surely kept the advancing thinkers and workers of the day scratching, so that brooding over their own shortcomings has had small place in their mental activities.

To you, however, who have your face toward the morning, and who see in the rising of the sun of scientific enlightenment glorious opportunities for civic and social betterment, great things are in store, for this gospel, as does an older one, brings life and immortality to light.

We all recognize that the terms under which we are living, especially in business and municipal life, are undergoing rapid changes. The catch word, "show me," which is on every lip, reveals the scientific attitude which has become the "spirit of the times." It is sinking deeper and deeper into the consciousness of the world, that to locate causes and apply remedies to them, rather than to effects or symptoms, is the only proper and economic way to treat the ills of life, whether social, political or physical.

What has been called the liberty of the individual is being crowded further and further back into the general good of the community, and unselfish service alone forms the touchstone by which the leader of men is known.

There is no department of human knowledge and scientific attainment which more accurately depicts this phase of modern readjustment and development than the properly ordered Health Department of to-day.

"Self preservation is the first law of nature," and the need for wise and effective administration of the known methods of combating the causes which kill has been borne in upon the minds of legislators and wideawake men everywhere, until something just had to be done towards cutting down the unnecessarily high death rate in every American community. The contemplation of the ever-recurring epidemics of violent disease, with the gunshot quarantine methods, and the great economic loss entailed has awakened the business sense of the nation. Hard headed financiers and thinking citizens in many cities and towns have followed the lead of the doctor and the scientist, and realizing that it is not only more humane, but cheaper,

*Read before the League of Virginia Municipalities, October 7, 1910, in conference at Charlottesville.

to nip these scourges in the bud, have aided in establishing more or less well-equipped Health Departments and given them power to do their work.

The specializing of public health activities in various quarters of the land has brought out many new and effective methods of preventing the spread of forms of sickness which were formerly thought to be inevitable. It is upon how to deal effectively with these diseases that I wish to dwell for a little while to-day.

When a given problem presents itself to you men of business, you immediately say, give us the facts, and these obtained, you are prepared to act intelligently. As a business proposition, all of you would condemn the unwisdom of putting a premium on hiding these facts, but this is just what Virginia and Virginia municipalities have been doing for years with reference to public health affairs. Naturally, she stands among the States almost alone in this position.

The only intelligent way to handle a possible epidemic (and every case of infectious disease is possibly epidemic) is to know where it starts and, like stopping a fire, quench it right there.

The only men who get this knowledge in time are the doctors, and from them, and them alone, this information must come. Upon the medical men best fitted to cope with disease the State of Virginia places a tax of $25 a year; most municipalities charge an additional $25, to which a commissioner's fee is added. With this as a starter, and in opposition to every idea of self-interest, the physician is required to give early information, which, when acted upon, practically places him out of business.

The doctors of the community, endowed with the ordinary failings of human nature, charged with the full task of the welfare of the individual sick among the people, are expected to zealously safeguard the whole public health without a single concession to the peculiar situation in which it places them. That they have taken the initiative in every advance movement along public health lines is the glory of the medical profession, and any injustice to them is a corresponding shame on those responsible for it.

I make, then, as my first point in the control of municipal diseases, that the friendly, active aid of the doctors should first be obtained by abolishing the premium upon carelessness and neglect, which takes the form of a license tax upon them.

When the unique relationship of the doctor to the public health is thus recognized, the public may, with propriety, demand that he carefully report every suspicious case of disease he is called upon to treat.

The control of diphtheria, scarlet fever, measles, whooping cough, mumps, pink-eye and itch is comparatively simple if the Health Department is notified in time.

In most of these potential epidemics, however, the greater number of cases occurring are mild in character and rarely require the attention of a physician. If the first cases, therefore, of these troubles are not severe, many children are exposed before the Health Department is aware that the disease exists in the community. If the public school has become a distributing center of infection the problem is multiplied many fold and the seeds of death are sown broadcast.

Is not this state of affairs a matter of gravest concern? And is there any consideration, financial or otherwise, which will outweigh the dire possibilities latent in the widespread epidemics with which we are so familiar?

Every municipal school should have adequate medical inspection or a trained school nurse, or both. The health of our children is more important than their intellectual equipment. To have healthy children go to school for knowledge and return from school with some constitution-destroying disease like tuberculosis, or some eye-destroying disease like measles or pink-eye, or some ear-destroying disease like scarlet fever, or diphtheria, or whooping cough, is poor satisfaction to the parent who pays the school tax, and who has a right to expect that every safeguard be thrown around his helpless little ones while under the public care. The School Board, then, with the active support of town and city governments, should place on the pay-roll of all the larger schools, at least, a thoroughly-equipped, experienced nurse, that by her constant supervision the reproach upon our schools as a nesting place for disease may be removed forever.

The periodical scare that every community

in the State suffers from the proximity of small-pox is one of the prices we pay for heedlessness. For centuries prior to Dr. Jenner's discovery of vaccination as a preventive against small-pox this loathsome and then universal disease literally scourged the civilized world, even kings and princes not being exempt. Since Jenner's time, however, his simple little procedure has absolutely banished small-pox from those communities where vaccination is practiced systematically, and completely robbed the disease of its terrors for those who receive the immunity so readily obtainable now.

The only sensible thing in this connection is for every community to see that the very simple, harmless and necessary preventive measure known as vaccination be applied rigorously until the fuel for small-pox—*i. e.,* unvaccinated persons—does not exist.

The most practical way to obviate the wholesale vaccination which a small-pox scare always forces upon a more or less unwilling public is to see that all children are vaccinated upon enrollment in school. In a few years every person will have submitted to the operation and the whole question be solved. Vaccination has few terrors for those who have once been immunized; so re-vaccination after a period of years will not constitute the problem that the initial vaccination has become.

Leaving the control of small-pox, let us hear of something more important. One writer on public health in a recent magazine states that "it is more dangerous to be a baby than it is to have small-pox." The great mortality among the babies of the country is a great reproach to us as a people. The greatest cause of death among infants is summer diarrhea, an easily preventable disease, due entirely to impurities in the baby's food. The principal food of children is milk, and by the lax way in which the milk supply of most cities in Virginia is inspected, death is simply invited, and he very frequently accepts the invitation. That the poor, helpless babe, who is forced to take what is brought to it, should be compelled to drink a compound reeking with microbes of death, because those in authority have not caused a proper inspection of dairies to be made, is a marked instance of sad municipal neglect, and this condition obtains all over the State of Virginia. There is a great responsibility upon you who furnish the sinews of war in the fight for pure milk, and likewise upon you who furnish the objections to any change which prevents any fight at all.

The best equipped dairies are frequently the worst in the methods pursued in the handling of the product, and all of them should be made to conform to definite requirements as to cleanliness; this necessitates frequent inspections, and it costs money. A baby is a little thing, and, when it belongs to others, unimportant, but when it is ours its value is infinite, and its place, economically, is fundamental to society, for upon the baby of to-day rests the future burden of the world. Surely, no expenditure which will conserve such potentialities is too great for any town.

I suggest, in solution of the monetary difficulties, that a municipal inspection tax be placed on every dairyman or farmer selling milk in city or town, and that every local Health Department be charged with enforcing the excellent State laws governing milk production and distribution.

We come now to a consideration of the best method a city may pursue in handling the disease, tuberculosis. Doubtless you are sick and tired of hearing about the great white plague, its contagiousness and its prevalence. I can't help it. At the risk of springing a chestnut on you, I would have you realize, if possible, that it is "up to you" if the constant menace of this deadly disease is to be controlled in your town. I would lay upon your hearts and minds the necessity of a careful study of the cases in your community, finding out who are affected, where they live, and what the probable source from which the disease came. Having obtained these facts, meet the issue squarely like Christian men whose regard for human life is higher than for the few dollars necessary to save useful lives to society.

Apart from the curability of these cases in the early stages, every one stricken is a menace to his neighbor as well as to his family, and if humanity impelled us not to isolate and attempt to cure them, self-preservation demands that every person afflicted be placed where his disease may not injure another.

Every city in the State of Virginia should

provide a place for the treatment of consumption; dispensary treatment will help, but sanitarium treatment is imperative. The average man, attacked with what he fears may be a mortal illness, will not go away from his home community; he prefers to die with his family around him, and hence, to reach the average man, the sanitarium must be near by.

The county and the city might combine to establish a place of this kind, making it bright and attractive, and a pleasant place to be, as is the case at the State Sanitarium at Catawba.

But, however the matter is worked out as to its auspices, the duty is plain upon each community to handle its own sick. A disease that yearly kills more people in the United States than fell in the civil war can only be controlled by systematic local efforts. It is, therefore, strictly up to you in your municipal capacity to meet the issue.

The last controllable disease to which I call your attention is by no means the least in importance. Typhoid fever is a disease which calls for more than perfunctory attention from the officials and from the citizen, though visiting the homes of the rich as well as poor it is entirely unnecessary.

The presence of the disease means that the patient has swallowed some portion of the bowel discharges of a person sick with typhoid fever; it always means just this, and never means anything else so far as its initial causation goes.

The control of the typhoid situation resolves itself, therefore, into the simple proposition of properly disposing of all sewage material. The doctor at the bedside can do much by disinfecting all discharges; but when this is done only the bed-ridden ones are cared for, since those just getting sick and those convalescing are at large and serve as walking distributors of dangerous disease.

Every community should enforce the State law regarding the sanitary privy that the fly who serves as the principal carrier of this germ may not be able to fill his carpet-bag so easily. No community, however, should be content to continue the earth closet system when a proper sewerage system may be had. And when I say proper system, I do not mean that popular method of dumping sewage through pipes into some previously clean water course. Colonel Roosevelt recently stated "that civilized communities ought to be able to dispose of sewage in some better way than by putting it in drinking water." The scientific world has discovered a better way, and sewage purification plants are being established in the most up-to-date municipalities throughout the North and West. We of the South must come to it; why not begin the plan for it now, that the typhoid infected streams adjoining our cities shall cease to longer carry the burden of our filth to the people whose lot it is to live below us?

In conclusion, I bring to your attention briefly, in recapitulation, the points I have made, as to how a municipality, as represented by its governing body, may control disease:

First. In conformity to the "spirit of the times," seek to prevent ills rather than cure them. Build a Health Department in deed as well as in name.

Second. Recognize the absolute necessity of a friendly and actively co-operating medical profession by abolishing the license tax on doctors, as every other State but one has done.

Third. Control epidemics of children's diseases by adequate medical inspection of schools and by the employment of school nurses.

Fourth. Control summer diarrhea of infants by adequate milk inspection.

Fifth. Control small-pox by school vaccination rigidly enforced.

Sixth. Control tuberculosis by the establishment of dispensaries and local sanitoria.

Seventh. Control typhoid fever by adopting and enforcing a sanitary privy law for unsewered districts and by regulating the disposal of sewage so as to prevent its being a menace to other localities.

This brief address by no means boxes the compass of what may be done in disease prevention. It does, however, cover a ground which in many localities in our State is totally untilled. If there be any such place represented here to-day may this word serve in breaking the soil for a harvest of better things.

1110 *Capitol Street.*

A Conference on Tuberculosis

Will be held in Richmond, Va., December 15-16, during which time the State Anti-Tuberculosis Association will also have their annual business meeting.

AUTOTOXIS.*

By ROBERT C. M. LEWIS, M. D., Marion, Ohio.

In taking up autotoxis, one of the most important subjects in the field of internal medicine, it will, perhaps, be in order for us to make clear to you our conception of the subject. That most of our autotoxemias originate within the digestive canal, of which the section between the pyloric end of the stomach and the ileocecal valve is the most prolific, is beyond question.

The laboratory in the small intestines wherein these toxins are generated is at once the most elaborate, as well as the most complex, of the many we physicians have for consideration. Autotoxis is one of the accidents likely to arise from disturbance of nutrition, and like contagion, ever since man has known of it, he has been asking himself of what it might consist. A knowledge of the topographical anatomy of the intestines is important as well as a clear conception of the physiological position of the intestines, for such knowledge makes it less difficult for the clinician in diagnosing those obscure cases where the reflexes are legion.

The experiments of Posner and Lewin have taught that it is not necessary for us to confine the bacterial entrance to the body to the blood and lymphatic channels, because they can pass through the bowel walls in masses and threaten the organism. It has been demonstrated that bacteria can penetrate any natural and artifical membrane that allows diffusion, and that there are fine canals, passable for bacteria, that cannot be demonstrated by the hemoglobin test. Great harm can be done to the general organism, and to special organs in particular, not only from this invasion, but also from absorption of the soluble products of bacterial metabolism and of food decomposition.

Hemmeter, on "Intestinal Putrefaction," brings out some excellent points along this line. Many instances of food infection, particularly of meat and milk, have been shown to be due to the presence of saprophytic germs, though tthe articles of food were from healthy stock and had been free from pathogenic bacteria, yet the conditions in the small intestines were such that the toxemia developed. It is now an established fact that the high mortality among infants in hot weather is traceable directly to autotoxis. Primarily, I presume, the milk is at fault in the case of the artificially-fed babe, and the milk may or may not be infected by the numerous varieties of the saprophytic germs, for, as already stated, the germ may develop in the small intestine by a putrefactive process, superinduced by defective nutrition, either through heredity or acquired. Autotoxis is much more rapid than where poisons from tainted foodstuffs are taken into the stomach direct. Tainted meat may be eaten and the characteristic symptoms of poisoning may not develop for many hours (eight to eighteen), while the typical symptoms of autotoxemia may develop in a very short time, as evidenced by the following case:

A healthy, well-developed mother, whose babe was about three months old, was doing the family washing, and had her clothes on an outdoor line. On looking out she saw a playful pup, which belonged to a neighbor, swinging from one of her freshly washed garments. In a fit of anger, she sent the puppy home, making many loud complaints; a wordy battle with the owner of the dog followed. At that moment she heard her babe crying, and rushing indoors with a high nerve tension she picked up the little one and gave it nourishment. Within two hours I was called to see the case, and recognized acute autotoxis from retarded digestion, and the child had just recovered from a convulsion. Such cases are not uncommon.

Bonchard claims, and I believe him, that nineteen out of every twenty cases of acute disease is the result of autotoxis. Before we were taught to believe this, we, like Omar, "stood before a door to which we had no key—before a veil through which we could not see." While I mean to confine myself, generally, to the region below the stomach, I dare not proceed further without making mention of one condition which is primarily responsible for much of our intestinal indigestion, and that is dilation of the stomach. In eight cases of chronic indigestion we are taught that seven times we find dilation of the stomach with an impossibility of retraction. This condition is often found in other than chronic dyspepsia, for it is frequently observed in the after-stages of serious acute disease. A general relaxation of the muscular walls of the stomach and bowels is often found after periods of grief, sad

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mental preoccupation, in general debility, in neurasthenia, in hysteria, etc. Those who eat rapidly and drink much at meals, who eat often, and at irregular intervals, not giving the viscus time to emulsify the foods before the emptying process begins, and another meal is crowded in before the preceding one is disposed of, all of these are factors for promoting intestinal indigestion, which we consider the prime cause of autotoxis. If the kidneys are diseased, we may have an autotoxis without an abnormal fermentative process in the intestines, and we often have the toxemia with the kidneys in a healthy state; but in the latter case you will observe that as soon as the kidneys become unusually active and a free flow of urine, clear and limpid as spring water, your patient shows signs of rapid recovery.

While recognizing the fact that toxemias arise from many other sources, we do claim that in the digestive canal the conditions most favorable for the elaboration of such poisons are realized. We must not overlook the great loss of energy to the body in handling and getting rid of the surplus of unnecessary food of whatever kind introduced into the alimentary tract, to say nothing of the danger of intestinal putrefaction and toxemia, when, from any cause, the system loses its ability to digest and absorb the excess of foods consumed. Further, the strain on the kidneys and other organs must not be overlooked. Nitrogenous substances peptonized are most excellent culture media for microbes. As the digestive canal is constantly open exteriorly and the foodstuffs carry many putrefactive agents with them, the question might arise, how can normal digestion ever be completed? But for the fact that the stomach, as food enters it, secretes a juice which is opposed to fermentation, we might say that our outlook for health was indeed limited. These infectious agents are not destroyed by the juices of the stomach, but are neutralized and it remains now for the bile to prevent, in a measure, or prolong the arrest of fermentation and putrefaction.

As we understand it, the chief office of the stomach is not only to mix into a uniform mass all of the varieties of food that reach it, but to dissolve the nitrogenous portion by means of the gastric juice. The fatty matters, during their sojourn in the stomach, become more thoroughly mingled with the other constituents of food taken, but are not yet in a fit state for absorption. The major portion of foodstuffs which contain the proteids, pass through the stomach into the small intestines unpeptonized, proving at once that the stomach function is chiefly for storing and macerating the proteids as well as the starches, sugars and fats. The conversion of starch into sugar, which began in the mouth, has been almost stopped, the soluble matters have begun to disappear by absorption into the blood vessels, and the same thing has befallen such fluids as may have been swallowed with the meal. The thin, pulp-like chyme, which during the whole period of gastric digestion is being constantly strained or squeezed through the pyloric orifice into the duodenum, consists of albuminous matter, broken down, dissolving and half dissolved; fatty matter broken down and *melted,* but not dissolved at all; starches very slowly in process of conversion into sugar, and as it becomes sugar, also dissolving into fluids with which it is mixed. Now, if this is the working process of a normal stomach in the preparation of chyme for the duodenum, what can we expect from a dilated stomach with its relaxed walls?

The putrefaction fermentation which follows when this process is imperfectly carried out gives off an excessive amount of sulphuretted hydrogen, sulphate of ammonium, etc. Now the symptoms which arise from this condition of affairs are common to you all—a feeling of fatigue, headache, general depression, deafness with a peculiar buzzing in the ears, vertigo with more or less disturbance of vision. These subjects will invariably have cold extremities during their attacks and are generally nauseated and chilly. Those who suffer most are of the intellectual class—teachers, preachers, lawyers and physicians—though the neurotic female is one of our most frequent visitors, regardless of occupation. These sufferers frequently tell us that a day or two preceding an attack they will feel unusually well and have a ravenous appetite. At this point we usually have those who specialize breaking in on our deliberations; they theorize on brain-storm, eye-strain, astigmatism, salpingitis, rectal irritation, etc. While each may have reasonable ground—and I do not question that—still I am not able to see in the same light with them. It is claimed, I believe, that the secretion of the pancreatic juice is depen-

dent upon the nervous system, and that a diminution or an absence of the pancreatic secretion may be caused by a variety of conditions, anger, fright, etc., as in the case of the nursing mother mentioned a moment ago. When putrefaction fermentation is present in the small intestines, there is one symptom well defined, which is almost diagnostic, and that is pain in the back, and especially is this true with women. The irritation to the fibers of the cerebro-spinal nerves which supply the intestines, from which the nerve irritation is reflected, through the fibers of the same nerves which supply the skin and muscles of the back, will, in all chronic intestinal disease, give pain. An alkaline medium is the most favorable for the digestion of fats and carbo-hydrates; therefore, the digestion and assimilation of foods in the intestines are much retarded in the severe cases of hyper-acidity. In that event, one of two conditions supervenes—evacuation of the bowels is delayed and constipation follows, or the reverse, a watery, yeasty and gaseous diarrhea. The urine, if over-acid, acts as a constant irritant to the sensitive mucus membrane of the bladder, and a spasmodic action occurs, similar to, and with nearly all of the distressing symptoms which characterize cystic catarrh, but which disappear promptly when the autotoxis has been removed.

You know it is a trite saying that "but few of us have brains enough to run our business and our stomachs successfully." I do not think it possible for a person to have good digestion whose brain is overworked, and I have observed that the most aggravated cases of migraine are among the highly intellectual. You will note that I am somewhat at variance with Dr. Gould, of Philadelphia, and for that matter, with many others, when I class migraine with the autotoxemias.

Allow me here to outline symptoms which you cannot fail to recognize as common in general practice: A lady, whose age may be on the scale between 16 and 50 years, has persistent headaches, or perhaps they are periodical, more particularly at her menstrual period; she will tell you that she is troubled with flatulence, both gastric and intestinal, constipated, pain in the back, both dorsal and lumbar, neuralgias, limbs go to sleep, perhaps an acne on the face, back and breast, and has hands and feet cold as the traditional frog. You readily recognize the word picture as a common one. If one of these subjects should begin to prepare for a visit, or have unlooked-for company, is shocked, either from joy or grief, they invariably have an attack of headache. Why? These subjects are generally neurotics, and a sudden impression made on the mental faculties will at once temporarily shock normal digestion, and the result is the same practically as we have in the case of dilation of the stomach—fermentation, putrefaction, auto-intoxication with all of the characteristic symptoms well marked. Constipation may, or may not, cause auto-intoxication. The hardened feces are encased to such an extent generally that absorption may not go further, while the morning diarrhœa, as it is termed by Delafield, is characteristic of intestinal indigestion, and is one of nature's methods of unloading the system of poisonous matter. It is well to note here that neurotics are very prone to autotoxemias, and that the insane are always constipated.

A babe is brought to you for examination. They will perhaps tell you that it is bottle-fed, give a history of vomiting, tell of green mucus and curds of milk in the fecal matter, bowels are irregular; the patient has a pallid, pinched expression, an ill-formed and prominent abdomen, malnutrition, mal-assimilation, you will say, and you are right. But why?

Again, in autotoxis, the relaxed walls of the little stomach cannot prepare the milk for intestinal digestion and a putrefaction fermentation follows, and the little one is poisoned of its own food.

The first effect from over-eating or too rapid eating is often to increase largely the secretion of hydrochloric acid and other elements of the gastric juice, and nature in trying to meet the excessive demands made upon her is practically drained, and the hyper-acid chyme is passed into the duodenum. What share is allotted to the bile, the pancreatic fluid and the intestinal juices is uncertain. We do not know, but many assert with confidence that the most important fluid in the process of intestinal digestion is the pancreatic fluid. The abnormal micro-organisms which produce putrefaction in the small intestines is without doubt responsible for most, if not all, of the troubles which come under the head of intestinal toxemias.

An illustrative case is the following: Soon after midnight I was called hastily by the wife of a colleague, and on arriving at the house

found the Doctor in a semi-conscious condition. When undisturbed he would snore, with a stertor, much like a person under the influence of an opiate. A loud, quick-spoken question would cause him to open his eyes and he would make an effort to answer, which, by the way, was unintelligible. I gleaned the following history from the wife, and it was confirmed the following day by the Doctor himself: They had attended a church supper of chicken pot pie late in the evening. The Doctor was a large man with an appetite accordingly, and after returning home he had gone out on the street and met some of his friends. (I will make things more clear, perhaps, if I state here, that our patient was a candidate for Representative at the time.) He and the friends found a convenient saloon, at which place they drank some beer, how much, "deponent saith not," but plenty. They ate some cheese and few pickles.

With that load the Doctor went home and to bed, and two hours later the wife was awakened from her sleep by the heavy snoring of her husband. She tried to awaken him without avail, and I was then called in. Here was a case of autotoxis well marked. What should be done? I will tell you what I did do: I immediately injected a dose of apomorphin over the region of the stomach, and it was followed by prompt emesis. Then, with two quarts of hot water in a fountain syringe, I emptied the bowels. His condition was not then quite what I had hoped for, so I bared his left arm and extracted about a pint of blood; a few minutes later he began breathing more easily; soon after I made another effort to arouse him, and had the satisfaction of seeing him awake and conscious. Thirty-six hours later he was as well as usual.

In closing, I will say that treatment is not difficult in these cases where we diagnose correctly. And with a fair knowledge of autointoxication as found in our commoner diseases, we should make a satisfactory diagnosis as a rule.

It must be reasonably clear to all that the first point to consider in such cases as we have mentioned, is to make an effort to have the system eliminate the poisons as soon as possible, else serious results must follow. Hundreds, yea, thousands, die annually from autotoxis, and the undertaker files a certificate with some physicians' signatures attached, stating that heart failure was the cause of death. Certainly "heart failure," but why?

I find the average person who complains of indigestion, due, perhaps, to some indiscretion in eating, having sick headache or migraine, is relieved more promptly by unloading the bowels with unstinted flushings than with any other one thing. A dose of beta-naphtol, or better, perhaps, a full dose of aspirin, a double Seidlitz powder, or a dose of castor oil, are all in order. Dr. F. F. Lawrence, of Columbus, claims that he has the happiest results from the castor oil, though I am more in favor of the aspirin, or the Seidlitz, or both taken close together.

When a subject is threatened with autotoxis a preventive measure is important, and in my hands a simple one—a sour milk diet—is most effectual. The fact that pathogenic bacteria do not thrive in a medium where lactic acid is present, helps solve the problem. Lactic acid is active in favoring peptic secretion, and the process of carbohydrate and proteid disintegration occurring in sour milk makes a softer, more digestible and smaller curd. The sour milk, more especially as cottage cheese is a direct preventive of putrefaction in the digestive canal. Salol and resorcin must not be overlooked as important remedial agents in these cases, but each should be used with a plentiful supply of hot water.

Now, gentlemen, I may not have presented anything new in this paper, but I hope I may stimulate you to take a better view of surroundings as you travel over a well-worn highway.

327 *South Main Street.*

SYMPTOMS AND TREATMENT OF HOOK-WORM DISEASE.*

By J. RUSSELL PERKINS, M. D., Spencer, Va.

This being such a wide-spread disease in the Southern States, destroying the energy, vitality and lives of so many of our patients, it is certainly time that every physician should be familiar enough with its symptoms to be able to diagnose even the mildest cases. The disease is becoming so well known that even some laymen are able to diagnose the marked cases. I do not think a physician should consider himself an expert or congratulate himself on hav-

*Read by title before the forty-first annual session of the Medical Society of Virginia, at Norfolk, Va., October 25-28, 1910.

ing diagnosed a few pronounced cases, as these are very plain and can be diagnosed at once on inspection, without the aid of the microscope. The cases we should be able to recognize are the mild and moderately severe ones, which do not show the pallor and other symptoms which we usually expect and look for in hookworm disease.

I shall not deal with the prevalence or prevention, as this very important part of the subject has been assigned to one who has canvassed the hookworm district of Virginia, and who is far better qualified to deal with the subject than I; therefore, I wish mainly to speak of the symptoms and treatment.

I know of no disease which gives such a variety of symptoms as this. The hookworm being a blood sucker, the symptoms are due in a large measure to loss of blood. Anemia following the loss of blood, of course, gives rise to other symptoms, and according to the best authorities a toxin seems also to play an important part in the destruction of the blood.

Dock and Bass, in their work on hookworm disease, divide these cases into slight, moderate and severe.

The slight cases are hardest to recognize as they have not the pallor and other marked symptoms. About the only noticeable symptoms are slight digestive disturbances, reduction in the hemoglobin, slight indisposition to work, and the presence of eggs in the feces. In some subjects none of the above symptoms exist except the digestive disturbance and the presence of eggs in the feces. These patients do not realize that there is any thing wrong, and will tell you that they are in perfect health, but if they can be persuaded to take the treatment they soon realize their condition. They begin to feel better at once, and invariably increase in weight. This class of patients have been termed hookworm carriers and are a source of as much danger as the severest case, as they continue to deposit the eggs on the soil, which in turn develop the larvæ by the thousands and reinfect the patient himself or other members of the family. I have had patients of this class to gain as much as fifteen to twenty pounds inside of a few months.

The moderate cases are the ones we see almost every day; the symptoms just mentioned are much more prominent; we find the peculiar facial expression—the tallow face, all the mucous membranes are anemic, the patient has no energy; if in an adult he is called lazy, is indisposed to work; if in child the parent will tell you that the child will not play around with the other children; some will say that they have no pain, but just do not feel able to do anything at all. The majority, however, will complain of some pain, especially in the epigastric region and in the joints. Shortness of breath on exertion and palpitation of the heart are most always present in moderate cases; hæmic murmers are often heard, and the mental condition is not up to the average child of his age. Most of them will give a history of ground itch, which is nothing more than an infection caused by the penetration of hookworm larvæ. Sometimes they will apply for treatment for these sores; one of my recent cases, a mother of five children, all of whom were hookworm subjects, came to my office for treatment, and had them on both forearms from the size of a dime to the size of a dollar. I can recall another case in a young girl, who had them on both breasts and in each axilla. The most usual locations, though, are between and under the toes and about the ankles. In small children we sometimes see these lesions on the buttocks; children in the country, especially the poorer classes, often wear only one garment; they sit and play in the dirt and get the infection in that way. Pus is often found in these sores, which is due to secondary infection, caused by scratching, as the penetration of the larvæ causes intense itching.

Another frequent symptom I have noticed is an increase in the flow of urine; one patient came to me for treatment, who had been treated several months for diabetes, and I, too, thought he had the disease, until an examination of the urine and feces was made. Enuresis is an occasional symptom. I have relieved three obstinate cases with thymol. Disturbed sleep and night terrors are also common.

Some patients seem to overcome the disease to a great extent without treatment where there is no reinfection, as the worm in the intestine will finally die. The subject may move into a district not infected, or change his occupation, avoiding reinfection in that way. Cases that do not take this course usually gradually go into the severe form. In this form the patient is in a very weak condition, the skin appears to be

almost bloodless, edema of the feet and legs is commonly noted, sometimes extending to the abdomen, and especially under the lower eyelids. The digestive disturbances are worse than in the moderate cases, diarrhea, constipation and sometimes bloody stools appears. I have seen blood in the stools from two patients. Pulsations in the neck are so marked that they may be seen across the room, hæmic murmurs are more audible, epigastric pain is more marked, fainting spells, headache and blurred vision are almost constant.

In young girls menstruation is delayed; if it appears at all it is irregular, scant and pale in color. Pregnant women often abort; if the child is carried to term, it is small and appears to be poorly nourished. It takes women some time to recover from the puerperal state, and I have known some to have to remain in bed for a month or more. When this severe stage is reached, the patient is liable to die either of this disease, some complication, or an intercurrent disease, the vitality and resisting power having been reduced to such a low state that it is hard for the system to fight any condition that may come up.

As to the number of worms present, in my experience, they have varied greatly. In my first case about one thousand were counted, and possibly twice as many more passed unnoticed. In other cases, where the symptoms were just as severe, not more than twenty or thirty could be found.

In the treatment of hookworm, we certainly have a specific; we know the cause, and it is easily recognized and understood by most all physicians, but still it is quite an undertaking because of the ignorance, poverty and carelessness of the majority of the subjects, the wide area covered, the enormous reproductive power of the worm, the lack of enforcemnt of sanitary laws in rural districts, and, what might be more effective, the lack of proper education of the people along this line.

After a careful observation of the country surrounding the little village in which I am located, I have not been able to find more than one privy to every ten families, and not one of these properly constructed. In some localities, the people use the chimney corner, stable, backyard, fence corners, and other convenient places for defecation. Until such practice as this is stopped, we may expect hookworm infection to continue.

How to check this is the question; but it seems to me that it should be done by enforcement of sanitary laws and by educating the population through the boards of health, medical inspectors, and sanitary officers. It is just as important for the counties and townships to have sanitary officers as it is for the cities. Our most efficient health department has already begun this most important step, and we hope that it will continue the good work until every hookworm district in the State has been thoroughly gone over, and every case treated, as the first and most important step is to treat as many cases as possible, thereby checking the supply of eggs at the source.

As to the direct treatment of the worms in the intestine, I have used thymol altogether. A great many other drugs have been advocated, but in my hands thymol has given such excellent results, I have used it in all my cases.

Before results can be had, the patient must be able to take the proper dose, and must be thoroughly prepared for the action of the drug. The heart and kidneys should always be examined, the kidneys especially, as thymol in large doses is a kidney irritant. The next thing is to thoroughly cleanse the intestines of mucus, as the worm is killed by the local action of the thymol, and if the worm is imbedded in a thick layer of mucus and chyme, the drug will pass through without producing the desired result. This is done the evening before the treatment is to be given by a large dose of Glauber salts, and only a glass of milk is allowed that evening for supper. The thymol is to be given in capsules early next morning on an empty stomach, one dose every hour till three doses have been given. One or two hours after the last dose of thymol, another dose of salts is given to cleanse the intestines of the thymol, when the worms appear in the stools. In some instances I have been unable to get the patient to retain the last dose of salts, and in such cases I give a bottle of effervescent citrate of magnesia, which is easily retained. No food is allowed till the intestine has been cleared of the thymol.

As to the dose of thymol, I usually give from sixty to ninety grains to an adult at each treatment; in children the dose is regulated according to age. In one case I gave 120 grains before

I could get results, due, I presume, to the large amount of mucus in the intestine. I have seen no more toxic symptoms produced from large doses than from small ones, and have seen large doses do the work, where small ones had failed.

Owing to toxic symptoms sometimes produced by thymol, it is better to have the patient remain in bed for several hours after the treatment. In my experience I have seen no more intoxication than vomiting or fainting, which passes off in a short while by keeping the patient in the recumbent position. These symptoms I have seen only a few times and were so mild as to require no treatment.

I repeat the treatment every one or two weeks till all the worms have been destroyed, which is determined by examination of the feces for eggs.

As to the number of treatments necessary, I have had to give from two to eight. Upon an average about three treatments, if properly given, will suffice.

As to results, about 75 per cent. of my cases have been cured; the remaining 25 per cent. have all been benefited, some failing to return for the second treatment, and others moving out of my jurisdiction. I have seen reinfection some months afterwards in several cases.

From a remunerative standpoint, I have found the treatment of hookworm disease a failure, as the compensation that I have received would do very little more than pay for the medicine used, but I feel that I have done just a little for suffering humanity and have extended to that class of indigent persons the aid and comfort which it has always been the privilege and pleasure of our profession to offer them.

A great deal of criticism has gone out from some of our hot-blooded Southerners to Mr. Rockfeller for his millon dollar offer, but to my mind the hearts of the Southern people should flow out with gratitude to him for his kind and generous offer, and if this sum is judiciously used, it will do a great deal toward the eradication of hookworm disease in the South. We also owe to Dr. Stiles, of Washington, and Dr. Harris, of Atlanta, a debt of gratitude for the light they have thrown on the subject. Coming to our own door, great credit should be given Dr. B. B. Bagby, of Virginia, who was one of the first to call the attention of the profession to hookworm in this State.

A PLEA FOR THE EARLY INSTRUCTION OF ACADEMIC STUDENTS OF BOTH SEXES AS TO THE DANGERS OF ALCOHOLISM AND ITS ASSOCIATED EVILS.*

By VIRGINIUS W. HARRISON, A. M., M. D., Richmond, Va.

Professor of Materia Medica, Therapeutics and Pharmacology, University College of Medicine; Physician to the Virginia Hospital; Medical Director to the Virginia Conference Orphanage, etc.

There is a viaduct which spans the river Impurity, separating women into two great classes—the pure and the impure. No woman ever passes over this bridge, but always through the river, and by public sentiment is forever rendered impure. This bridge has a wide passage for men of all civilized countries so that they can go to and fro without being contaminated in the sight of the world. The impure woman may even escort her lover to the further end of the bridge, there to be met by the pure woman, who will receive his embraces and kisses of love. As long as this double standard of morality is allowed to exist just so long will there be unhappy marriages, divorces, murders and suicides.

I hope to recall to your minds in this paper the dangers of intemperance and impure living, and then try and find its place in preventive medicine.

Intemperance.—The abuse, or even the use, of alcoholic drinks is one of the worst, if not the worst evil of college life. The use of alcoholic beverages is entirely unnecessary in the young. If a boy has to use wine to make him an agreeable fellow, his companion had better find some one who is worth something in himself. Fraternity and college banquets are sometimes the places at which some young man may start down the hill of life to end in a drunkard's grave and a soul lost for eternity. We, as medical men, teachers, church officers, and as men who know the family history as none others, not even the ministers of the gospel, have an opportunity that is our most important duty to utilize, and the sooner we realize it and go to work the sooner will there be more happiness in the world.

I believe the immoderate use of alcohol will ruin the mental, physical and moral life of the young; without these there can be no higher

*Read before the Medical Society of Virginia at Norfolk, Va., October 25-28, 1910.

life. Now, I will try and prove what I have just said.

The physiological action of alcohol on the brain and nervous system is, at first, to stimulate their action; thoughts may flow freer, for a time only; soon depression of the brain follows, so that it requires a larger quantity of alcohol to produce the same amount of stimulation, until finally there is no stimulation—all is depression. Sooner or later the brain and nervous systems become diseased, memory is impaired and the capability of doing good work is lost.

The immoderate use of alcohol will irritate the stomach, its continued use will produce catarrh of the stomach, constipation, inactive liver, irritability of temperament, and has associated with it in 50 per cent. of the cases, nephritis. Many other conditions are found as the result of alcoholism, but these will suffice my purpose. A later part of the nervous system to be depressed is the sexual center; this remains stimulated after the brain has become depressed, ideas perverted and bad bargains are made, so that the young are more easily led to the houses of ill-fame, which is the last danger of intemperance I will refer to.

Dangers of Venereal Diseases.—Every man who has illicit connection with a woman accompanies her that much nearer hell—a suitable companion if he is striving for that place for his eternal home. He must remember he is responsible for his own sin, and the double sin in sending her that much further away from purity. This should be sufficient to make the young shudder and turn their backs on such a life, but experience teaches us that moral teaching will not be sufficient and we must show them physical dangers to gain their attention. We will have to picture to them all the horrors of syphilis, about which most of the young have heard and fear, but gonorrhea, spoken of in college parlance as "no worse than a bad cold," is not dreaded, for he goes to the nearest drug store for a quick cure, and if the discharge stops soon he considers himself well and takes it as a joke. The young not being informed as to the dangers of this one disease has been the cause of much suffering, not to say death. When they are told that gonorrhea is not cured always when the discharge has stopped; that it is communicated to others by means of towels, cigarettes, etc. (for the fingers of one who has this disease are never clean); that blindness may occur from lack of cleanliness;; that the germ of this disease may remain latent in the urethra for years, and after marriage may contaminate his wife, even before the honeymoon is over, and possibly send her to the surgeon to be unsexed, or for some other operation to save her from death or a miserable life as an invalid, the patient is astounded at the havoc his disease may cause. If his wife should be so fortunate as to become a mother the child may become infected and lose its sight. Fifty per cent. of the blind in our institutions are there because of gonorrhea. We must also teach the young that gonorrhea sometimes produces stricture of the urethra, necessitating surgical treatment for its cure. This same disease may travel further and incapacitate him from becoming a father, practically unsexing him. The patient should not be given a clean bill of health for matrimony until several negative bacteriological examinations have been made of the contents of the urethra. All I have said is every-day knowledge to you, and some of you know more of the necessity of this teaching than others, but my hope in presenting this paper is that we use our knowledge to prevent such dangers as I have very briefly and very incompletely mentioned. If 90 per cent. of the operations on the genitals of females are the result of gonorrhea; if 50 per cent. of the blind in our institutions are there from the same cause; if untold suffering in chronic invalidism is the price paid by a large number of men and women who are not counted in the above list; if all can be prevented, and we know how to educate in these matters the people who, in many instances, are ignorant of the risks they are taking, *is it not our duty* to get to work and give the matter the attention it deserves? I admit this is a delicate matter to handle, but it can be done, and it must be done to insure the safety of home, society and the country at large. I advise that every college should have lectures to the students on sexual education and the dangers of the use of alcohol, and on this latter, if for nothing else, because of the danger of the evil of contracting venereal disease. Parents should be instructed so that they could teach the young, even before they enter college. This matter should be

brought to the attention of female students, by female teachers, so that they, too, may be aware of the dangers; it will save some of them from contracting the diseases, or, if contracted, they will know the importance of being treated and cured (?). It will further be a warning to them as to the company they keep, and also to be on their guard as to whom they will marry. Some of the men who drink freely, and who are known as wild, may find it a little harder to find the girl who is willing to risk being infected in order to reform him.

If parents were instructed in these matters they would ask more questions in regard to their future son-in-law; they would not be satisfied to know that he could take care of their daughter in a financial way, or to know that his social standard was up to par, but they would require a satisfactory evidence that he was free from venereal disease. So important is this subject, the following report (*Jour. A. M. A.*, Sept. 24, 1910,) was adopted by the American Public Health Association at its last meeting, the committee recommending:

1. The recognition, study and control of the prevalence of these, as with all other communicable diseases, in order to ascertain their distribution.

2. An educational campaign for parents of all social classes, and children of all ages and sexes. This teaching should be not only moral, but also medical in the widest sense.

(a) Proper distribution of circulars, pamphlets and other literature by State health departments through all suitable channels.

(b) State health departments to instruct all of its local health officers in sexual matters, and direct them to make a systematic effort to educate the people in their respective communities.

(c) State health departments to make a definite and determined effort to awaken and interest the medical profession in this fight against venereal diseases.

(d) State health departments to send out specially trained paid teachers and lecturers of their own, supported by exhibits and lantern slides to address special meetings of parents, health officers, medical men, teachers and others in schools, colleges, churches, etc., on these and other preventable diseases.

(e) State health departments to encourage the organization of local leagues or associations whose purpose shall be the support of and control of a crusade against the spread of all communicable diseases. Said societies to include every profession and walk of life; to depend on philanthropists for necessary funds rather than on paid subscriptions for fundimental support.

(f) Health departments to interest and provide for the authorities having charge of the educational curriculum in public and in private schools: (1) By introduction of biology into the graded courses of all schools; (2) to provide instruction in sexual matters for the students of the upper grades; (3) by special instruction to normal school students who are to become the instructors. To impress on presidents, deans, preceptors, and teachers the necessity of exercising their influence on the students in reference to the communicability of syphilis and gonorrhea, and to inculcate a morale of protection among college fraternities.

(g) To utilize the public press for the proper occasional presentation of the subject, and to discourage the display of advertising matter which encourages the exposure to the dangers of these diseases.

(h) To utilize church clubs, fraternal societies, trade unions, woman's clubs, and especially mother's clubs for the instruction of parents.

(i) Health departments to recommend the enactment of laws for: (1) Physical inspection and segregation of prostitutes; (2) notification and report (by number, if desired,) of venereal cases; (3) physical examination of men before marriage, male applicants for marriage license in order to obtain it being required to submit to an examination by a duly qualified physician for the purpose of ascertaining whether the said applicants are free from all venereal diseases; (4) to make it a crime to spread any venereal disease; (5) by keeping open free night dispensaries and the maintenance of special dispensaries and hospitals for these diseases.

(j) Advocacy of temperance on account of the relationship between alcoholism and venereal diseases.

(k) Advocacy of personal cleanliness and venereal prophylaxis. Advocacy of early marriages.

401 *North Allen Avenue.*

CASE OF PROBABLE HYDROPHOBIA—WITH RECOVERY.

By E. W. BROWN, M. D., Washington, Va.

The following is an interesting case which came under my observation quite recently. The diagnosis was hydrophobia, and, what was most unusual, if it was hydrophobia, it ended in complete recovery of the patient. Authorities on this subject, if I am correctly informed, report only one case of recovery from this dread disease.

The writer wishes to record his observations on this case and have the readers judge as to the correctness of the diagnosis.

On September 7, 1910, I was called to see Mrs. G. J., who gave the following history: She had been sick for about one week; complained of general weakness; was somewhat irritable; had headache and insomnia. On the afternoon of September 6th she noticed, when attempting to swallow any liquid, she became strangled. The next morning when I saw her for the first time, she was very irritable; had intense hyperæsthesia, severe headache, anorexia; temperature was 101, pulse 130; voice was husky, tongue slightly coated, and

dysphagia present. Upon examination, throat and lungs presented nothing abnormal. Calomel and podophyllin tablets were ordered for her. Upon taking one of these tablets with water she was seized with an intense spasm, apparently affecting all the laryngeal muscles. A hypodermic injection of hyoscine, grain 1-100, was given, and this seemed to quiet her somewhat. In about one-half hour the calomel and podophyllin tablets were given again with the same result.

I asked her husband if she had been bitten by a dog, but he did not know.

On the afternoon of September 7th I called into consultation Dr. W. J. Smith, of Sperryville, Va., and we found her as above described, but with a greater horror of attempting to swallow. She was constantly trying to clear the throat of abundant tenacious mucus. On attempting to take water, at our suggestion, she was again seized with a spasm. Dr. Smith said, in his opinion, we were dealing with a case of hydrophobia, he having seen a case previous to this one. At this visit we were told by the patient's husband that on inquiring he had been informed that his wife had been bitten by a puppy about nine weeks previous and that the puppy had died a few days afterwards, but not one moment's thought had been given to the occurrence. We also learned that a number of dogs in this neighborhood had died recently from what was called rabies, and that one boy had been bitten and sent to the "mad stone."

Our patient's temperature at no time went higher than 102 and passed off similar to a typhoid temperature.

During her illness her mind was generally clear, with very little delirium, but noise and bright light would cause slight spasmodic twitching of the muscles.

On the afternoon of September 10th Dr. E. G. Brumback, of Luray, Va., saw the patient with Dr. Smith and myself. He also diagnosed hydrophobia, having had previous experience with the disease. Her condition became gradually worse until September 15th, when she began to improve; pulse and temperature dropped rapidly to normal, the excitability decreased, and after a few days she could take liquid nourishment from a spoon without causing spasm.

From this time on her recovery was uneventful.

I am free to confess that if this case had ended fatally I would have believed our diagnosis was correct. I do not believe it was a case of pseudophobia, because her mind had not dwelt upon having been bitten by a dog; also she had no idea of the symptoms of hydrophobia, and in pseudophobia an increase in temperature is not found.

If this was a case of hydrophobia it stands out prominently as one of perhaps two cases of reported recovery from this disease, and I only wish more of my colleagues in the field of medicine could have seen this case, as it was of great interest to me, and I am sure some of them could have offered many suggestions in confirming or refuting our diagnosis.

DIPHTHERIA-MEMBRANOUS CROUP.*

By LUCIEN LOFTON, A. B., Ph. D., M. D.,
Emporia, Va.

I will not tax your patience with the causation or the pathologic conditions found in the various forms of diphtheria. The main object desired in these brief remarks is to make clear two things—that membranous croup, true croup, and laryngeal diphtheria are one and the same disease; and present a method of handling this troublesome and death-dealing malady, which has proved most satisfactory to the speaker.

First. Pseudo membranous inflammation beginning in the larynx is almost invariably true diphtheria—*i. e.*, the Loeffler bacillus is present.

Second. Pseudo membranous laryngitis following a primary pseudo membranous inflammation of the tonsils, pharynx or nose is, in the greater majority of cases, also due to the Loeffler bacillus.

Third. Pseudo membranous laryngitis following pseudo membranous inflammation of the tonsils, nose or pharynx, occurring as a complication of measles, scarlet fever or influenza, is more frequently due to another kind of infection (usually streptococcus) than to the Loeffler bacillus.

Touching more especially upon so-called membranous croup which should in all cases

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be treated precisely as you would ordinary pharyngeal diphtheria, I would call your attention to the fact that it is not what we see that makes the case serious, but it is what we do not see that should not be taken for granted. To my mind, no physician can afford to be careless or indifferent to the croups we are often called upon to treat. If there is, or is not fever present, a metallic nasal twang, a sulphur odor of the breath, a puckering lip upon deglutition, even if the microscope does not divulge the diphtheria bacillus as present, you do no physical harm by treating a case as genuine diphtheria. I fully realize that many physicians do not regard membranous croup as diphtheria, but with the best diagnosticians and microscopists of the country continually hammering away saying it is true diphtheria, and saving thousands of lives yearly, which a few years ago passed away, it does seem reasonable that their premises are to be respected and their warnings should be heeded.

Naturally adults suffer less from diphtheretic infection than the young. A sore throat in a grown-up causes him to immediately seek treatment. In a child the patient's objective symptoms are practically the only guide you have. All cases of membranous croup are dangerous, both to the patient and persons with whom he comes in contact. Isolation should be rigidly observed. I believe in the doctrine that to err in the patient's favor is not a crime, even if it is more expensive. I further believe that to take a chance with membranous croup and attempt to treat it as an ordinary old-fashion wade-in-the-water case is unjust, unscientific and uncalled for in this apparently enlightened medical age. A child without diphtheria treatment when suffering from membranous croup has a slim chance to escape its ravages. So sure am I of this that I do not hesitate in every instance to give modern treatment, and feel justified in the undertaking.

There is always much difficulty in locating diphtheria infection low down in the air passages, as you well know. The child is prone to kick, gag, cough, vomit and raise a howl when the attempt is made. Then, too, we must confess there is some delicacy in the boldness of our endeavors, though our face may be duly protected against ejected matter. It is true, bacilli of diphtheria will not live on normal skin, but when the skin is cut or bruised, as after blistering or an eczematous condition and when a moist, raw surface is present the bacilli freely flourish. Healthy granulating surfaces also form a favorable soil for their propagation. To give a pen picture of laryngeal diphtheria or membranous croup will help this body to understand the condition more succinctly.

In many cases the Klebs-Loeffler bacillus produces its influence, first, upon the mucous membrane of the larynx, and in these cases the mucous membrane of the nose and pharynx may never give evidence of a false membrane. In laryngeal cases the first symptom is a cough of a hoarse, metallic, ringing character, and never to be forgotten when once heard. The temperature may be slightly above normal or even, in many instances, normal. The toxic absorption is slight on account of the locality affected and the constitutional symptoms are usually mild, therefore, misleading. The local symptoms, however, may, in a few hours or a few minutes become very alarming, as they are the result of laryngeal obstruction, there being marked dyspnœa with retraction of the intercostal and supra-clavicular spaces, and later of the epigastrium and lower chest. These are associated with an increasing cyanosis. The child soon becomes restless, is forced to sit up to breathe, and for the same reason bends forward with its head thrown back. In these extreme conditions, unless relief is soon gained, the child dies of suffocation. Other cases may develop more slowly, but the final result is the same. Where you have such complications as hemorrhage from the nose, throat and larynx, the graveness of the patient's condition suggests itself to the attending physician. Broncho-pneumonia often accompanies membranous croup, while acute albuminuria is really a part of the disease. Indeed, it may be said to help mask the diagnosis of laryngeal diphtheria when the microscope is not available. Albumin is present, whether the disease be mild or malignant. We must always differentiate between follicular tonsilitis and other well known diseases which attack the tonsils of rheumatics. Bear in mind in the pharyngeal diphtheria, when you find a false membrane on the uvula or the pillar of the fauces or tonsils, diphtheria is most likely present.

The causes of death in diphtheria in their order are as follows: Membranous croup or laryngeal diphtheria; septic infection, which may be a slow death; sudden heart failure—paralysis of the muscle; broncho-pneumonia, following tracheotomy occurring during convalescence.

As to the treatment. The best preventive measures against diphtheria infection are a clean nose and mouth. The slightest appearance of a membrane when diphtheria is abroad should be overcome at the earliest possible time. The mouth and throat should be kept free from inflammation; all decaying teeth should be filled or removed; coughs should be treated, and in all cases of sore throat an immediate examination should be made. All diphtheria infection should be isolated and quarantined with an intelligent nurse. The hygiene should be the best obtainable and sunshine and fresh air should flood the sick chamber. All movable objects should be removed prior to the entrance of the sick child, and disinfected, should contamination be suspected. It is better the child should be kept mentally and physically quiet and large repeated doses of anti-toxin administered as often as indicated. The rule must be less solids and more fluids than in health in so far as feeding is concerned. Nose sprays, strongly antiseptic, used every one to two hours from 6 A. M. to 9 P. M., and during the night if patient awakes. The best stimulant for cases which may be depressed is hot brandy well diluted, or with the concentrated foods. Strychnine, to the extent of 1-30 of grain every four hours may be given to a child 4 years old. Small doses do no good to a fagging heart in these cases. Aromatic spirits of ammonia during a syncopal attack acts rapidly and most satisfactorily. The same may be said of camphor and ammonium carbonate, but atropine apparently does not benefit. Morphine, hypodermically, acts well in some cases. Lime and iodine internally are indicated. Strange to say, the juice of the pineapple in some cases, where the fauces only are affected, acts like magic in dissolving the membrane. External applications to the throat do not deter the progress of the disease, though they are useful in relieving the pain and swelling in the lymph glands. Nitrate of silver forms an insoluble albuminate and is, therefore, useless. But the main stay is serum therapy—the anti-toxin or anti-vaccine treatment. Always let your initial dose be large—5,000, 8,000 or 10,000 units. If favorable results are not noted in two or three hours repeat the dose. The point for injecting anti-toxin under the skin is a matter to be decided by the attending operator. The region of the scapulæ, or the buttocks, usually suffices for small children, but any portion of the body will answer so long as the dose is large enough. The subcutaneous cellular tissue should be punctured as deeply as possible. If you are clean in the administration of your serum and the product is fresh, abscesses rarely result from its use. Veins and arteries, of course, should not be invaded. Some deaths have followed the injection of anti-toxin serum, but within the past five years such an unfortunate occurrence has been exceedingly rare. Recent reports from 1,000 physicians state that no deaths have resulted from the administration of anti-toxin. This number also report their mortality when anti-toxin was used in 5,794 cases, within twenty-four hours was less than 9 per cent.

There are scores of physicians who do not recognize that membranous croup is laryngeal diphtheria, and who refuse to use one of the very few genuine remedies we have in medicine.

I cannot reasonably agree with the position they hold. Believe me, I do not mean to be autocratic when I say there is no excuse for this state of benighted medical ignorance in this year of grace, when thousands of lives are being saved by the men who know that membranous croup does promptly kill, and that anti-toxin will, when given early, save practically every little sufferer, whose life is held by a thread.

ARTERIO-SCLEROSIS—A PLEA FOR ITS PREVENTION BY EARLY DIAGNOSIS AND TREATMENT WITH AUTO-CONDENSATION, LIGHT BATHS, HYDROTHERAPY AND REGULATION OF THE DIETS AND HABITS —CLINICAL SUMMARY.*

By J. C. WALTON, M. D., Richmond, Va.

Arterio-sclerosis is the most common cause of death after 50 years of age; in fact, the

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majority of all deaths after 50 are caused by arterio-sclerosis.

As high blood pressure is the premonitory symptom, careful records of the arterial tension as a routine should be made in all cases in the young as well as the old, and as there is not infrequently a marked difference between the tension in the two arms of from 5 to 20 mm., it is, therefore important that the tension should be taken in both arms.

High blood pressure in young persons indicates a diathesis and is of grave importance.

Etiology.—The exciting causes of the fibroid changes in the arteries are usually some form of toxemia, gout, alcoholism, syphilis, lithemia, mal-assimilation, disorders of the liver and intestines, over-indulgence in eating and drinking, excessive use of tobacco, mental anxiety, worry and strain, the strenuous life, etc.

The blood condition which produces the high arterial pressure is the primary condition, and is not secondary to the deficient renal secretion as heretofore held.

The fibroid diathesis, whether hereditary or acquired, is nearly always associated with lithemia, defective oxidation, faulty metabolism, or deficient elimination of waste products.

Cardio-vascular and renal di-ease is markedly on the increase in this country; consequently, it is necessary for the medical profession to take means for its prevention, and it is unimportant in taking these preventive measures, which part of the anatomy of the patient has farthest advanced in the pathologic process. One patient may have arterio-sclerosis greatest in evidence, another cardiac weakening, another renal disturbances, but the disease in any case is the same.

Increased blood tension seems to be the premonitory condition and the forerunner of all subsequent disturbances in this vicious chain of cardio-vascular renal disease.

The cause of increased blood tension has been variously attributed to tension caused by increased nervous activity, to hypertrophy of the left ventricle, which is probably compensatory to overcome the increased arterial pressure; to the circulation in the blood of toxins absorbed from the intenstines which irritate the vessel walls and the central nervous systems; to toxins retained in the blood from insufficient excretions by the kidneys, and to a hypersecretion of the vaso-constrictor element of the supra-renals, or to a relative increased secretion from these glands at a period of life after 50 when the thyroid furnishes a diminished secretion, and, therefore, less vaso-dilator stuff.

It is probable that all or several of these elements which cause arterial irritation are at work at once, and there probably is no one cause for a slowly developing endarteritis, increased blood pressure and a future arterio-sclerosis.

It is manifestly impossible to prevent the serious conditions that have gone before—viz., acute illness, syphilis, mercury and lead. It is possible to prevent the continuation of causes that are continuously acting in the individual patient, such as alcohol, tobacco, over-eating, intestinal indigestion, and the nervous tension caused by an excessive amount of mental labor, or by the strenuous life the patient may be leading.—*Editorial, Journal A. M. A.*

It necessarily follows from the preceding remarks that every case of arterio-sclerosis must be treated individually and upon its own merits. There is no condition that requires more skill and care on the part of the conscientious physician to successfully treat. Study your cases carefully, systematically, and, if possible, try to remove the causes, as, by so doing, you place your patient in the best possible condition for recovery.

Regulation of the diet and habits is of vital importance. Elderly people require much less food, and frequent small meals are better than larger meals at longer intervals. Meat should be restricted to one meal a day, and coffee, tea, beers and alcoholics absolutely prohibited. Purgatives are often indicated, and in extreme cases blood-letting to relieve urgent symptoms and to gain time for the action of other remedies. Drugs are a disappointment, and I have never seen any real or permanent benefit from them.

The hope of a remedy lies in the intelligent use of physio-therapy, and it affords me great pleasure to call your attention to the results obtained by some of the leading clinicians of our own country.

The main indications in the treatment of arterio-sclerosis are to lower tension, increase elimination, and to correct faulty metabolism. In the electric light bath the elimination of both solids and water are largely in excess of

that from the heat or steam bath, the depression is much less, with a calmative action greatly relieving the nervous depression and generally lowering the tension from 5 to 20 mm. I always follow the light bath with warm douches (98°), and in one case of arterio-sclerosis that had been previously paralyzed and was threatened with another attack, the tension from one bath dropped from 220 to 180—40 mm.

Dr. Simon Baruch, professor of hydrotherapy in Columbia University, New York, in his demonstrations at the Vanderbilt Clinic, in which careful sphygmographic tracings were made in every case to determine the effect of applications of water on tension before and after, noted remarkable results from hydratic applications on the neuro-vascular cutaneous system. The cases of hypertension were reduced, and, conversely, those of weak and lowered tensions were raised, thus conclusively proving that hydrotherapy is a reliable and simple vaso-motor regulator, and, therefore, is a most valuable agent in the treatment of hypertension, arterio-sclerosis, and the major part of all diseases.

Baruch, by his intelligent advocacy of hydrotherapy, has extended its use in this country and abroad. It is indeed gratifying to note the recognition, though tardy, on the part of the medical profession of the earnest labors of this great American and this peerless Southern physician.

Less than five years ago D'Arsonval published his epoch-making paper on the treatment of arterio-sclerosis with high frequency currents. Since then D'Arsonval's conclusions have been verified by many independent operators in this country and abroad. My own experiences with this method extend over three years; the results have exceeded my most sanguine expectations and even in advanced cases the relief of the distressing symptoms and the subsequent feeling of well-being and comfort have been most striking and encouraging.

It has, therefore, seemed to me the most rational remedy and the one that comes nearer than all others in overcoming the pathological conditions met with in this heretofore intractable disease. This current profoundly affects the chemical processes of the body, increasing tissue combustion and oxidation, and facilitates the elimination of waste products, nitrogenous debris, uric acid, urea, etc., and the peripheral circulation is increased through vaso-motor stimulation and regulation. This current can be depended upon to uniformly reduce the tension, increase the elimination, correct faulty metabolism, relieve nervousness and insomnia, and to establish a feeling of well-being and comfort. The results are generally prompt, the patients expressing themselves as being benefited after the first treatment. In those cases associated with chronic nephritis, there is a marked improvement as shown by the increased specific gravity of the urine, and the lessening amount of albumin and tube casts, which, under prolonged treatment, gradually approaches the normal. In those cases associated with heart disease, it is the remedy par excellence, and in the liver and intestinal cases it meets the indications.

In using auto-condensation, the patient can, without removing the clothing, sit or lie on an insulated pad and receive a current of from 200 to 1,500 mm.; the sensations are agreeable, and they frequently go to sleep while taking the treatment; in seances of from 15 to 20 minutes the tension is reduced from 5 to 20 mm.

High frequency can be obtained either from a coil or a large statie machine of 16 or 20 plates. My first experience was with a large Wimhurst-Holtz static machine of 20 revolving plates. This machine would generate an average current of about 300 mm. I afterwards found that old and obstinate cases frequently require much larger currents, and latterly I have been using with most satisfactory results a Baker static machine which can be run at a very high rate of speed—2,000 revolutions to the minute—and generate a current of from 200 to 1,500 mm. For most cases, a current range from 250 to 500 mm. is ample with 20-minute seances.

As, unfortunately, the literature on the treatment of arterio-sclerosis by auto-condensation is very scarce and fragmentary, and in order to arrive at some definite conclusions as to the results obtained by this method of treatment by leading specialists who are specially equipped for, and are largely engaged in, this line of work, I have written a number of them a personal letter enclosing a list of nine questions especially pertinent to this work, and request-

ing an answer thereto. I deeply regret that the limited time at my disposal will prevent my giving their replies in full.

1. What methods do you employ for lowering bloood pressure,

2. In using auto-condensation (a) how many millimetres are usually administered to the dose; (b) duration of treatment; (c) the average fall of blood pressure; (d) general results after each treatment?

3. Upon what does the prognosis depend as to cure or relief?

4. What are your results in cases of arterio-sclerosis accompanied with chronic interstitial nephritis, especially as to the effects on the kidneys in lessening the amount of albumin and casts, and the increased elimination as shown by the higher specific gravity of the urine?

5. Results of treatment in (a) angina pectoris or arterio-sclerosis of the coronary arteries; (b) in arterio-sclerosis of the cerebral arteries?

6. How often is it necessary to administer the treatment and how frequently after the tension has once been reduced to about the normal?

7. What has been your experience as to the permanency of results, etc?

8. To what, in your opinion, is the difference (frequently) of 5 to 20 mm. between the tension in the two arms due? Has it any connection or special significance as to arterio-sclerosis, or is it, as claimed by some observers. pathagnomonic of arterio-sclerosis?

9. Do you regard a persistent high blood pressure without the presence or other symptoms as a characteristic of, or as a premonitory symptom of, arterio-sclerosis?

Department Of Analyses, Selections, Etc.

CONDUCTED BY
MARK W. PEYSER, M. D, RICHMOND, VA.
Secretary Richmond Academy of Medicine and Surgery, etc.

A Case of Foreign-Body Calculus.

I. S. Hirsch, New York, says that the crystalline deposits formed through the agency of the colloids of normal urine are reversible precipitates because they may be redissolved by simple chemical means. Normal urine contains no colloid which is not thus capable of being redissolved after precipitation. Fibrinogen, however, such as is produced by inflammation, is just such an insoluble and irreversible colloid as will furnish a stroma suitable for the formation of permanent crystalline deposits or calculi. A foreign body in the bladder becomes encrusted, therefore, only as a result of the inflammatory process it initiates, and the nature of the crystalline deposit depends, to a great extent, on the reaction of the urine associated with the cystitis. This theory regarding the pathogenesis of urinary calculi explains the variability in the rapidity of the production of a calcareous deposit about foreign bodies. In some cases encrustation will appear in forty-eight hours, while in other cases it will not occur for months or years. It depends to a great degree on the extent and severity of inflammatory reaction. The inflammation, in turn, depends on the nature and condition of the foreign object, and the condition of the bladder prior to the entry of the substance.

Sooner or later after the entry of the foreign body a cystitis is set up, and when sufficient colloid has been produced to serve as a stroma for the urinary colloids, these are deposited in successive layers on the foreign object. The shape of the resulting calculus is considerably influenced by that of the foreign nucleus.

Such calculi may be spherical, ovoid, fusiform or irregular. Once begun, the process proceeds very rapidly, and these concretions may grow to considerable size in a short time. Encrustation usually begins in the center of the foreign body, the ends remaining free, and if the object is long and slender, like a needle, a fusiform calculus is formed. Frequently the ends of the object remain entirely free. This may be due to the constant contraction of the bladder walls, for objects which are long and rigid usually lie transversely with their extremities against the walls of the organ. The resultant friction prevents the accumulation of deposits. When one end of the foreign body is pointed, it may become embedded in the bladder wall, and then the free end alone becomes encrusted. Exemption of the end from encrustation may also be due to ts position, *e. g.*, in the urethral orifice. After sufficient deposition has taken place in the middle of the object

so that the ends become less mobile, one or the other end may also become encrusted.

In the case reported, the symptoms were suggestive of enuresis, and for this condition the child was treated elsewhere. A rectal examination, which probably had not been previously made, but which is an important and essential procedure in the determination of the true significance of the urinary symptoms, disclosed a probable tangible cause for the symptoms. The distinct grating sensation elicited by the sound rendered the diagnosis of stone in the bladder most probable. The radiograph furnished conclusive evidence on this point. From the bimanual examination and the sounding alone it was evident that the calculus was of large size. This, taken in conjunction with the absence of a story of renal affection and the brevity of the period of suffering, made it probable, even before the radiograph disclosed the actual condition, that a foreign body was the nucleus for the calculus.—(*Journal A. M. A.*, October 22, 1910.)

Autoserotherapy in the Treatment of Collections of Fluids in Serous Cavities.

Lemann, New Orleans, says the method was originally proposed in 1894 by Gilbert, of Geneva, for the treatment of pleurisy with effusion, and its use has been limited chiefly to this. Donzello treated five patients by the withdrawal of 5 c.c. of pleural effusion and the immediate reinjection of 3 c.c. under the skin under the forearm. The patients recovered, and he is convinced that the treatment was responsible for the prompt absorption of the effusion and the copious diuresis which followed. In one case he was obliged to aspirate the effusion owing to serious complications on the part of the lungs, but it did not collect again. Jona used the method in fifteen cases of pleural effusion (nine of which were due to tuberculous pleurisy and one was traumatic) and found it worth while. The fluid was absorbed in from six to thirty-four days. In all save two, the injections were followed by a marked increase in urinary secretion, excitation of which seems to be the method of their action.

Carletti treated twelve cases of pleurisy with effusion by aspirating the fluid, setting it aside at blood-temperature to allow autolysis to proceed, and injecting it later. The results seemed to be better from this modification than from the immediate reinjection of the fluid, but he considered them not very favorable even with the modified technique.

Fede reported five patients treated with the withdrawal of 1 c.c. of pleural effusion reinjected at another point. This was repeated three times on three successive days in the acute cases, and the results were excellent. In more chronic cases, up to 4 c.c. or more were injected. No reaction, local or general, took place, except in one case of tuberculosis where the prostration and rise in temperature promptly subsided.

Lemann reports three cases of his own. In the first, 15 c.c. of fluid were withdrawn and 7½ c.c. of this were injected, the patient leaving the hospital on the sixth day afterward, apparently cured though fluid had disappeared by the fourth day. The second case was one of chronic parenchymatous nephritis, there being anasarca in addition to accumulation of fluid in the pleura. Seven and a half c.c. of fluid were aspirated and the entire amount immediately injected. Within two days flatness on the affected side corresponded with that on the other, and the edema had disappeared. Urine increased in amount, but continued to show a large quantity of albumin and numerous casts.

The third case was one of cirrhosis of the liver. The patient had ascites and was tapped many times from 1892 to April, 1910, when he was prevailed upon to try autoserotherapy. Fifteen c.c. of clear fluid were withdrawn from the abdominal cavity and 7½ injected under the skin. No increase in diuresis was noted, but the circumference of the abdomen at the umbilicus diminished in fifteen days from 91.2 cm. to 84.25 cm. (36 to 33 inches). He ascribes the diminution to a diarrhea; but whether this was due to the injection or was intercurrent and simply a coincidence it is impossible to say.

Lemann says that autoserotherapy is entirely empirical. Marcou has suggested that its action in pleurisy is due to the stimulation of the formation of anti-pleuritic substances. Browning, arguing upon purely theoretic grounds for the use of the patient's own serum in the treatment of various diseases, would explain the matter for infectious diseases, at least, by assuming

the formation of specific immune bodies or amboceptors. It is clear, however, that this would not explain the action of autoserotherapy upon transudates due to parenchymatous nephritis or to cirrhosis of the liver.

In view of the experiences so far reported, the author submits the following investigations as desirable:

1. The use of this method in a large series of patients, scientifically observed.

2. Experimentation with the injections of transudates and exudates into animals, together with an attempt to arrive at the chemical nature of the active principles of these transudates and exudates.—(*N. O. Med. and Surg. Journal,* November, 1910.)

Delirium Tremens—A New Plan of Treatment.

George E. Petty, Memphis, in recapitulating, says that it is contended that delirium tremens is a double toxemia, a drug and an autotoxemia, and that the virulence and activity of the poison in the blood are increased by the progressive loss of fluids with a diminished intake of same.

The difficult and labored heart action are largely due to the decreased volume of circulating medium. A leading factor in the immediate causation of the delirium is a hyperemia of the brain in a large majority of the cases, and an anemia of the brain in a small per cent. of them. In the treatment it is essential to differentiate these in order to intelligently apply proper remedies to control the delirium.

The first indication—that of support of the vital functions—is most effectively provided for by the administration of normal salt solution and by sparteine. These agents, at the same time, are the most effective means of promoting the free action of the kidneys. They also contribute in no small degree to meet the second and third indications—namely, control of delirium and elimination of the poison from the blood.

In the hyperemic cases, gelseminine, and in the anemic cases, strychnine, by regulating the supply of blood to the brain, at least temporarily restore a tranquil condition in which the eliminating organs can be made to respond to purgatives and diuretics, which are the principal curative agents.—(*Gulf States Journal of Medicine and Surgery,* October, 1910.)

Drugs.

What his ammunition is to the hunter drugs are to the doctor. True, many derangements are treated without them and few diseases are really cured by them, yet even in the latter case it is seldom that drugs of one kind or another cannot be used in such ways as to render illness less painful or irksome and accelerate recovery. It may be accepted as a truth, capable of proof, that the less use a doctor has for medicine the less he knows about the true capacities they possess for modifying the processes of life, whether physiological or pathological. A great misfortune happened to the medical profession something over a generation ago when a man of strong intellectual powers became an authority in medicine, and led medical thought towards the desert of therapeutic nihilism.

He was a close observer and scientific worker. His ability in diagnosis was unusual. A great medical school gave him a prominent position, and before the medical profession realized the trend of affairs a generation of young doctors came upon the scene who cared more to diagnose a case than to cure it. He had set the fashion, and, American-like, all the rest followed. Also it was, and still is, to some extent, true that the German teachers of medicine were imbued with the same sentiments, looking upon sick men and women who came to their hospital clinics and wards as merely so much material upon which to sharpen their diagnostic acumen.

A mistake in diagnosis was good cause for mortification, but an error in treatment did not much matter. Things never did reach quite such a condition in this country, but the departments of materia medica and therapeutics in most of our medical schools were considered of very inferior importance. Moreover, modern surgery just then began to dazzle the imagination of students who did not realize that every one of its triumphs was founded on advances in materia medica and therapeutics—a new understanding of the value of old remedies. The ultimate result was that the medical schools ceased to turn out doctors, and sent forth only "observers," "investigators," "original workers," and the like. Many an one of them when confronted with a case of typhoid fever in September, in a malarial region, could make a

diagnosis, but after a few preliminary prescriptions was lost. As for recognizing and treating the hundreds of odd cases that practice brings he could make, perhaps, half a dozen diagnoses for each one, but could cure none. Is it a wonder that all sorts of quackery flourished? That "Irregulars" found rich pickings everywhere? That "new schools" sprang into existence like mushrooms?

The writer, in conversation with a brilliant and scientific physician, who claimed to have no faith in drugs, asked him why he did not use atropine in a case of internal capillary hemorrhage. His reply was that he did not believe in astringents for internal hemorrhage. The fact that almost every patient with evil-smelling stools is benefited by such drugs as the sulpho-carbolates did not appeal to him. He had heard the great man referred to ridicule the idea of a few grains of an antiseptic spread over thirty feet of intestine having any effect, and all the observations of his associates to the contrary, were as nothing beside the words of "authority."

Fortunately, the various schools of medicine are now wideawake to the fact of the great revival in materia medica and therapeutics, and a student must know something of those studies before he can pass their examination successfully.—(*Idem.*)

Book Notices.

A Text-Book of Pharmacology and Therapeutics. By ARTHUR R. CUSHNY, M. A., M. D., F. R. S., Professor of Pharmacology, University of London, etc. Formerly Professor of Materia Medica and Therapeutics, University of Michigan. Fifth edition, thoroughly revised. Illustrated with 61 engravings. Lea and Febiger, Philadelphia and London. 1910. 8vo. 744 pages. Cloth, $3.75 net.

The first edition of this work on the "action of drugs in health and disease" was published eleven years ago, and each edition since then has been thoroughly revised and enlarged. It has little that is empirical, although where the therapeutical action of a drug is not easily explained, and yet has proven serviceable, the fact is pointed out. The action of each drug is studied from a rational point of view, and the therapeutic conclusions drawn therefrom—especially where experience confirms the facts. This is the adopted text-book in many colleges and is a good one for such purposes, although the general practitioner would perhaps have preferred that some distinct therapeutic table had been added so that he might the more readily looked up the action of drugs, intended for special conditions which are stated in the text-book, but not indexed.

Vaccine Therapy—Its Theory and Practice. By R. W. ALLEN, M. D., B. S. (Lond.). Late Clinical Pathologist to Mount Vernon Hospital for Diseases of the Chest, etc. Third Edition. Philadelphia. P. Blakiston Son & Co. 1910. Small 8vo. 277 pages. Cloth, $2 net.

The general profession and public have so long associated the word "vaccine" with the prevention of variola, while yet nothing is specially said of this form, that the title may be misleading to those of the older school of practitioners who know nothing of "opsonins." In reality, the book treats of most other forms of vaccine, such as for tuberculosis, catarrhs, typhoid, dysentery, gonorrhea, erysipelas, etc. The field suggested by this book is a broad, open one and promises to be in the near future of much utility to the general practitioner. The fact that this is the third edition in five years shows the growing interest in the subject.

Practical Medicine Series. Under general editorial charge of GUSTAVUS P. HEAD, M. D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School, and CHARLES L. MIX, A. M., M. D., Professor of Physical Diagnosis, Northwestern University Medical School. Volume II. GENERAL SURGERY. Edited by JOHN B. MURPHY, A. M., M. D. LL. D., Professor of Surgery, Northwestern University, Chicago. Series 1910. Chicago. Year Book Publishers. 12 mo. 615 pages. Cloth, $2. Series of ten volumes a year, as one subscription, $10.

It is scarcely necessary to do more than to note the issuance of Volume II, 1910, of this Practical Medicine Series on *General Surgery*. Like all other of the series, it notes the advances in surgery during the past year.

We would advise our friends to become annual subscribers at $10, rather than pay the special price of each volume as issued, which in the case of this volume is $2.

Practical Medicine Series. Under General Editorial Charge of GUSTAVUS P. HEAD, M. D., Professor of Laryngology and Rhinology. Chicago Post-Graduate Medical School, and CHARLES L. MIX,

M. D., Professor of Physical Diagnosis, Northwestern University Medical School. Volume 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. 12mo. 367 pages. 1910. Chicago. Year Book Publishers. Cloth, $1.50 net. Series of ten volumes a year $10.

We have so often had occasion to commend this series of ten volumes a year on the progress in different fields of medicine and surgery that we have now only to say that this volume on advances during the past year or so on the *eye, ear nose and throat* stands in illustration of its value. Whoever properly files his annual series for several years can easily trace the history of progress in the several departments of medicine or surgery and the specialties.

Practical Medicine Series. Under General Editorial Charge of GUSTAVUS P. HEAD, M. D., Professor Laryngology and Rhinology, Chicago Post-Graduate Medical School, and CHARLES L. MIX, A. M., M. D., Professor Physical Diagnosis, Northwestern University Medical School. Vol. IV. Gynecology. Edited by EMILIUS C. DUDLEY, A. M., M. D., and C. von BACHELLE, M. S., M. D. Vol. V. Obstetrics. Edited by JOSEPH B. DeLEE, A. M. M. D. Vol. VI. General Medicine. Edited by FRANK BILLINGS, M. S., M. D., and J. H. SALISBURY, A. M., M. D. Vol. VII. Pediatrics. Edited by ISAAC A. ABT, M. D., and Orthopedic Surgery. Edited by JOHN RIDLON, A. M. M. D. Series 1910. Chicago. Year Book Publishers. 12mo. Price, Series 10 Volumes, $10.

Each of these books represents the advances during the preceding year in the departments named in the titles, and each has its own price unless the full series is included in the annual subscription. Thus, the price of Vol. IV. is $1.25; Vol. V., $1.25; Vol. VI., $1.50; Vol. VII., $1.25.

Psyche: A Concise and Easily Comprehensible Treatise on the Elements of Psychiatry and Psychology. By DR. MAX TALMEY. New York. 1910. The Medico-Legal Publishing Co. Small 8vo. 282 pages. Cloth, $2.50 net.

The following extract from the advertisement of the book will give a good idea of its scope to those interested in mental disease and seeking information on the subject:

"This book will enable them to acquire an adequate knowledge of insanity without long, arduous study. For, though thoroughly scientific in scope and method, the treatise presents the complicated subject of psychiatry so simply and clearly that it will cause no more mental effort to the medical reader than a work of fiction, and will be comprehended even by educated laymen, as attorneys, pedagogues, etc., to whom an acquaintance with disorders and defects of the mind is very useful."

Though comparatively short, the book is well indexed.

Editorial.

The National Confederation of State Medical Examining and Licensing Boards.

Dr. N. R. Coleman, Columbus, Ohio, chairman of the Executive Council, announces that the twenty-first annual meeting will be held in Chicago, February 28, 1911. In the past the confederation has met during the meeting of the American Medical Association, but the Executive Council decided on this day between the meetings of the Association of American Medical Colleges and the Council on Medical Education of the A. M. A., as the interests and aims of the three organizations are so closely allied that it was deemed advisable for each to be familiar with the work of the others.

The American Public Health Association,

Including representatives from the United States, Canada, Mexico and Cuba, will hold its 1911 meeting in Havana from December 4th to 9th. The improved sanitary conditions have so completely extinguished yellow fever from the island that instead of a discussion of this disease, as would possibly have been requested at a former meeting, the local physicians are desirous of having "Tuberculosis" the subject for special consideration. Dr. William C. Woodward, Washington, D. C., is Secretary.

The American Society of Medical Sociology

Is an organization recently established for the purpose of studying radically all questions of a socio-medical nature. It is an important field not covered by any other existing society. Dr. A. Jacobi is Honorary President; Dr. William J. Robinson, President, and Dr. A. C. Jacobson, Secretary. Questions of vital importance are now under investigation by the members. Requests for information should be addressed to 12 Mount Morris Park, West, New York City.

W. B. Saunders Company

Announce that they will shortly issue a three-volume work on Practical Treatment, written by international authorities, and edited by Drs. John H. Musser and A. O. J. Kelly, both of the University of Pennsylvania. Under the editorship of these two most able clinicians it is needless to say that the work will remain a source of practical information for many years to come. The price will be $6 per volume, in sets only.

The Petersburg Medical Faculty,

At its meeting on November 17th, had the annual election of officers, which resulted as follows: President, Dr. W. P. Hoy; Vice-Presidents, Drs. J. R. Beckwith and R. A. Gamble; Corresponding Secretary, Dr. H. A. Burke; Recording Secretary and Treasurer, Dr. W. C. Powell. At the conclusion of the business meeting the annual supper was served at the Chesterfield Hotel.

The Seaboard Medical Association of Virginia and North Carolina

Will hold its fifteenth annual meeting at Kinston, N. C., December 6th-8th, under the presidency of Dr. W. T. Parrott. An excellent program has been arranged, and a cordial welcome is assured all who may be able to attend. Dr. J. R. Parker, of Goldsboro, N. C., is Secretary of the association, and Dr. Armistead K. Taylor, of Washington, N. C., chairman of the Executive Committee.

The Medical Society of Northern Virginia and the District of Columbia

Met at the University Club, Washington, November 23, 1910, with Dr. A. Barnes Hooe, of Washington, presiding. A most interesting program was presented and the usual good time enjoyed by those in attendance.

Messrs. Parke, Davis & Co.

Wish to advise the public that a man traveling from place to place and presenting a card with the name of "R. F. Hall," as also that of their firm, has no connection with their house.

The Southside Virginia Medical Association

Will convene at Suffolk, Va., December 13th. Communications should be addressed to the Secretary, Dr. E. F. Reese, Jr., of Courtland, Va.

Obituary Record.

Dr. Robert G. O'Hara,

Of Bedford City, Va., died in Lynchburg, November 13th, after being in bad health for several years. He was born in Ireland about fifty-five years ago. After serving as an officer in the British army, he came to this country and studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1885, and then located in Bedford City, where he held many positions of honor and trust. He was also a member of the Medical Society of Virginia. His wife and several children survive him.

Dr. Charles W. Rodgers,

Who was born in Highland County, Va., February 21, 1862, died at his home in Staunton, November 15th, after an illness of several years from tuberculosis. He graduated in medicine from the University of Virginia in 1885, after which time he became a member of the Medical Society of Virginia. Dr. Rodgers was for many years a member of the Medical Examining Board of Virginia and a leading member of the profession in his section of the State, and was also prominent in Masonic circles. He is survived by his widow and three children.

Dr. John W. Cringan,

Of Arrington, Va., died suddenly, November 21st, while en route to Richmond for a visit. He was born in the latter city a little more than thirty-three years ago, and after the usual academic education, took up the study of medicine, graduating from the University College of Medicine in 1901. He became a member of the Medical Society of Virginia in 1905, and was prominently identified with medical life in his section.

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Original Communications.

ARTERIOSCLEROSIS, ITS ETIOLOGY AND SYMPTOMS.*

By L. T. ROYSTER, M. D., Norfolk, Va.

When the subject of arteriosclerosis was assigned me by the society, a friend suggested that I had an easy task, since all that was necessary to be said was, etiology, anything; symptoms, anything; and then throw the subject open for debate. I am quite sure that had I followed the suggestion, I would have fared better, for the latter part of the remark is true to a large extent, and the more I have endeavored to condense my remarks so as to be proportionate to the occasion, the more difficult has the task become. However, I shall as briefly as possible outline the two phases of the discussion designated by the title.

ETIOLOGY.

From the outset, we must bear in mind the fact that arteriosclerosis is a systemic condition, manifesting itself pathologically in certain changes in vessel walls, thereby predisposing to many disturbances of physiological processes and functions, producing a varied symptomatology, and is not a distinct disease entity.

The two general classifications recognized by many authors are the congenital and acquired, though there is considerable doubt in some minds as to the congenital form. Undoubtedly there are individuals who are born with inferior arterial systems, and to avoid this, we should, in the words of the Autocrat, select our ancestors for several generations back.

Age.—Although a state primarily of old age and premature age, it may occur in infancy, in which there is always a suspicion of luetic taint; and no age is exempt.

Sex.—Men are more disposed than women, because of exposure, hard work and other vocational reasons.

Race.—The negro is especially prone to arterial degeneration, though the reason for this is by no means clear.

These predisposing causes, however, are merely interesting since we have slight or no control over them. In a general way, continued hypertension may be considered as the main exciting cause, though there are others.

The class of cases which are of more interest to us are those of midde or young adult life, or what may be called the prematurely aged.

1. By far the most frequent cause is what is known as the wear and tear of life, and especially is this true of the terribly rapid pace incident to modern times. Thus those of us who bear grave responsibilities with a multiplicity of details, coupled with a lack of proper exercise and insufficient diversion—in other words, too close attention to business—are the surest sufferers from this premature senility. Such cases are especially to be noted among bankers, financiers, lawyers and physicians.

2. *Acute infections,* notably syphilis, typhoid and tuberculosis are potent exciting causes.

3. *Intoxications.*—Lead seems to act to a marked degree as a producer of arterial degeneration, as shown among painters, or those engaged in the manufacture of paints and other lead products.

Tobacco and Alcohol.—There is much diversity of opinion as to the part played by these two substances in the production of the general condition. Some condemn them in unqualified terms, while there are other equally careful observers who claim that both of these articles are harmless so far as degeneration of the

*Read before he forty-first annual meeting of the Medical Society of Virginia, at Norfolk, Va., October 25-28, 1910, in symposium on arteriosclerosis.

arteries is concerned. The weight of authority, I believe, lies on the affirmative side, and the manner of their action is twofold; first, by their inherent toxicity, and, second, by producing hypertension.

Gout, diabetes and chronic nephritis, all act in a manner very similar to each other, that is, by a retention of poisons without proper and sufficient elimination.

4. Conditions keeping up high blood pressure; and in this we have the most far-reaching of the many causes.

(*a*) Overeating, which produces and maintains a condition of hyperemia. Osler compares the human body to a locomotive. Some of us are express engines, while others are merely shifting engines. The former requires vastly more fuel than the latter. Most of us do only yard engine work, but continue to supply sufficient fuel for the express engine.

(*b*) Overexertion obviously acts by producing and maintaining a state of hypertension. The type of laboring man who is constantly lifting heavy burdens, who has hardened arteries and hypertrophied heart is too familiar to us all to call for further comment.

Briefly then, the agencies entering into the production of this condition may be classed under these heads: First, those which act through their own toxicity; second, those producing either general or localized hyperemia, and, third, those causing and maintaining a state of hypertension.

SYMPTOMS.

Many cases of arteriosclerosis run their course for years, or, perhaps, to the end of a long life without symptoms referable to the condition, but the majority manifest at least suggestive signs within a few years of the onset of arterial degeneration. The symptoms are produced largely by insufficient blood supply, either to a particular part of the body or to the whole body. The obvious reason of this is that the sclerosed arteries are unable to respond to the normal vaso-motor impulses, hence the insufficient blood supply.

There are certain signs during the early stage of the condition which result from the sluggish response to vaso-motor stimuli which are classed as suggestive, but which to the observing clinician furnish definite danger signals. Thus, the patient may notice that he tires more readily than is usual after even slight exertion, or there may occur an unusual, or, perhaps, somewhat sudden intolerance for alcohol or tobacco; or, again, the patient, who is usually of a cheerful and courteous nature, has spells of irritability, seems cross to those around him, and work in which he has heretofore taken delight becomes irksome, and often there are slight tendencies to food disagreement.

By this time if the patient has consulted his physician, the case should be clear almost at once, not as a suspicious case, but as one which calls for active measures, which, if instituted at once, will in all probability save a useful citizen to the community, and, perhaps, the head of a house to his family.

Well-marked arteriosclerosis calls for no special diagnostic ability to discover, for the most cursory examination will elicit the four pathognomonic signs, to-wit: (1) Hypertrophy of heart; (2) accentuation of second sound; (3) palpable thickening of arteries; (4) increased blood pressure.

In well-marked cases we may not necessarily have this complete syndrome, but this complement forms the typical so-called "text-book" case.

As mentioned, in most cases a concentration of thought is irksome, there is distinct disinclination to take up a new task or inaugurate new methods in business. There may be slight or profuse nose bleed without other assignable cause; this, however, may produce a relief of some of the symptoms, especially that peculiar headache which is so frequently described by patients as suggestive of a tight band around the head. Slight edema of ankles, without urinary findings or with an apparently normal heart, is commonly noted. The slight fatigue on trifling exertion, alluded to above, may give place to decided dyspnea, and there may be the most transient dizziness or faintness.

Dyspeptic symptoms of established arteriosclerosis are so common that there is even described a dyspeptic type or form of the condition. These symptoms consist in regurgitation and pyrosis and the apparent disagreement of favorite articles of diet. On examination of the stomach contents, there is usually a subacidity.

Hypertension.—This is a usual, but by no

means a constant symptom. The reason this is not constant is that those cases in which the arteries have undergone change to an extent which interferes with normal response to vasomotor stimuli and in which the heart is intact, are, of course, cases of hypertension; conversely, when the heart has weakened also, there is maintained a balance closely approximating normal, or sometimes there may be even a decrease of tension below the normal. Therapeutically, this suggests the futility of using vasodilators or vaso-constrictors to regulate the balance of pressure without the closest attention being paid to the force of the heart beat.

One fact must be borne constantly in mind when observing blood pressure, and that is that persistent high pressure with normal urinary findings is not a sign of arteriosclerosis, but of incipient chronic nephritis. However, high tension if persisted in will produce arteriosclerosis, but, in such instances, the kidney and not the arterial system is primarily at fault.

Heart.—Sooner or later the heart, which has been pumping against the increased resistance, necessarily gives way. At first, there is hypertrophy of the muscles, both as to size and number of fibres. As overwork continues, the ventricle becomes enlarged, and finally, when resistance becomes greater than contractions can overcome, broken compensation inevitably ensues. The clinical symptoms of this condition are too familiar to call for review in this paper.

Arteries.—More or less, all people of advanced years have arteries which may be rolled under the finger; this is normal. Just what is physiological and what pathological is a matter of judgment which can only come of large experience.

Ocular.—Among the most important signs of this condition are those to be found in the eye, and a careful and expert examination of this organ should form a part of any systematic physical examination. Of special importance in this regard are tortuosity of vessels and areas of retinitis. Unfortunately for our patients, the first diagnosis of arteriosclerosis is only too often made by the ophthalmologist.

I can do no better than quote the excellent classification of Warfield of the ocular manifestations:

Suggestive Signs.—(a) Uneven calibre of vessels; (b) undue tortuosity; (c) increased distinctness of the central light streak; (d) an unusually light color of the breadth of the arteries.

Pathognomonic.—(a) Changes in size and breadth of retinal arteries so that they look beaded; (b) distinct loss of translucency; (c) alternate contraction and dilatation in the veins; (d) most important, indentation of veins by stiffened arteries.

The Arcus Senilis.—Almost a certain indication of arteriosclerosis, but the converse is not true.

Nervous System.—Nervous symptoms referable to blood pressure changes are noticeable a long time before other signs are manifest. Changes in disposition, sleeplessness, vertigo, sometimes fleeting loss of consciousness, faulty memory of details and the symptoms of nervous dyspepsia already alluded to are frequently seen, as also various parasthesias, such as numbness, tingling, sensations of heat or cold, either general or localized. Stiffness of joints and muscles, spells of weakness, etc. Various neuralgias, especially in aged persons—the so-called rheumatic pains of those of declining years—usually follow the line of large blood vessels rather than the nerves. Sometimes we may have low constant or intermittent fever; and in such cases tuberculosis and syphilis must be excluded.

Such are in general the premonitory and some of the pathognomonic symptoms which may extend over periods ranging from a few months to years, but finally the inevitable state of well-marked arteriosclerosis is reached which exhibits the classical signs: (1) Hypertrophy of heart; (2) accentuation of second sound; (3) palpable thickening of arteries; (4) increased blood pressure.

Heightened Blood Pressure.—It should always be borne in mind that our judgment is most fallacious in estimating blood pressure, however expert we may have become; hence, no observation should ever be made in which the touch alone is relied on; if hypertension is suspected, no diagnosis should ever be attempted without the use of the sphygmomanometer.

Although the general arterial system is more or less affected, yet the degeneration exerts a selective influence; and on this depends the

gravity of the situation. Thus, there are instances in which the complete obliteration of an artery amounts to little or nothing as to life or even health; on the other hand, if such an important artery as the lenticulo-striate becomes affected, the result is only too well known.

The localities principally affected are the heart, kidneys, abdomen, brain, spinal cord and local vaso-motor system, and on these being affected depends the development of the most important symptoms and complications.

(1) *Heart.*—This organ is ultimately affected in most cases of arteriosclerosis; broken compensation is bound to occur when a heart which has pumped hard against an increased and abnormal resistance is suddenly overtaxed. Dyspnea on slight exertion, precordial distress, slight edema, and sometimes scanty urine result. Slight attacks of broken compensation may be recovered from, but there is constant impending danger of recurrence.

Sclerosis of the coronary arteries and base of aorta sooner or later results in that most pitiable condition to which so many professional men have succumbed—angina pectoris, and heart-block or Stokes-Adams syndrome results when the bundle of His is involved.

(2) *Kidneys.*—In the vast majority of cases of arterio-sclerosis the kidneys are affected. Anemia and edema of various localities are particually noticeable; in fact, the general symptoms common to primary nephritis may develop during the course of arterial degeneration.

(3) *Abdominal Organs.*—The more recent investigators assure us that the increased blood pressure incident to this condition is dependent largely upon the involvement of the splanchnics. Pain is frequent, digestive symptoms the rule, and degeneration of abdominal viscera pronounced. This condition is often mistaken for other diseases, and surgical measures are often instituted needlessly, owing to the mistaken diagnosis.

(4) *Brain.*—Patients who are in the advanced stage of arteriosclerosis are frequently the subjects of transient attacks of hemo or monoplegia, or aphasia; these attacks develop suddenly and depart as suddenly, or may linger for a little while. Occasional mild epileptiform seizures or merely slight stiffening of the whole body may occur. Dementia senilis is frequently the result of this condition, while melancholia or, in fact, any of the recognized cerebral symptoms may develop.

(5) *Spine.*—True epileptiform convulsions during the course of arteriosclerosis are attributed to lesions of the spine rather than of the cerebrum. But, as a matter of fact, very nearly any nervous manifestations referable to lesions of the spinal column may develop from involvement of the arteries of this region.

(6) *Peripheral.*—Whenever endarteritis obliterans reaches the stage of complete occlusion and collateral circulation is deficient, gangrene of the part supplied by such arteries results. This is usually preceded by loss of sensation of the part affected.

Closely allied to, if not directly traceable to, this condition is Raynaud's disease.

A man is truly as old as his arteries.

THE PATHOLOGY OF ARTERIOSCLEROSIS.*

By HARRY T. MARSHALL, M. D., Charlottesville, Va.
Professor of Pathology, University of Virginia.

In my talk to-day I shall not deal directly with the acute changes of the intima resulting from various toxins, such as those of typhoid fever etc., but shall consider only the chronic thickening of the arteries.

I wish to touch upon three points relating to this disease: The anatomical changes; the probable significance of those changes; and the effect of those changes upon the separate organs and upon the body at large.

In regard to the anatomical changes you will recall that the arteries have a peculiar structure characterized by possessing an outer sheath, or adventitia, consisting of a connective tissue membrane, containing fairly abundant small vessels which nourish the outer and middle walls of the arteries (the vasa-vasorum), and also containing the vaso-motor nerves and abundant lymphatic spaces; a middle coat consisting of elastic fibres and smooth muscles and an inner coat or intima lined on the inside by the smooth endothelial cells which rest upon a delicate elastic tissue membrane, which, in turn, is supported by a loose and rather delicate arrangement of connective tissue fibrils. You will also remember that the vasa-vasorum are not supposed to penetrate further than into the

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middle coat of the artery, while the inner part of the middle coat and all of the intima derive their nourishment by absorption either from the vasa-vasorum or through the endothelium lining the lumen of the vessel.

The relation between the elastic tissue and the muscle tissue in the middle coat is of importance. In the aorta and larger arteries there is very little muscle tissue and a very large amount of elastic tissue; as the vessels diminish in size the elastic tissue becomes less conspicuous and the muscle tissue relatively more abundant, until in the smaller arteries and arterioles there is little else than smooth muscle in the middle coat of the artery. You will recall that the vaso-motor nerves are not supposed to act upon the elastic tissue, but only upon the smooth muscle, and from this you will see that arterial tension is maintained by vaso-constriction of the smaller arteries and arterioles, while the elastic tissue in the larger vessels converts the intermittent pressure produced by the heart's beat into a steady force propelling the blood forward. Until recent years the tremendous importance of the elastic tissue and the dangers resulting from diseases of it have not been sufficiently appreciated.

We are beginning to believe that in arteriosclerosis the first lesion consists in a weakening of the elastic tissue fibers at one or many points in the artery. The result of this weakening is that more strain is thrown upon the remaining elastic tissue fibers adjacent to the one which is injured. Now, under the conditions producing arteriosclerosis the causative factor or factors do not cease to act, but continue—usually with increasing effect—so that eventually quite a large number of elastic tissue fibers will be weakened or broken, or there may even be a general lowering of the strength of these fibers throughout the arterial system or even throughout the body.

Now, it is generally true that the injured organism attempts to adapt itself successfully to any altered state in which it may find itself. The fact that these attempts are often unsuccessful does not interfere with the truth of this general statement. Examples of such adaptation are familiar to you all in the healing of wounds, in the successful fight against infectious diseases, and in the recovery from any disease. In the majority of cases the reparative process tends to occur at the situation where the injury has taken place, as is seen in the healing of wounds, or of a typhoid ulcer, etc. In the case of the arterial degeneration a different process comes into play. Although the original injury apparently affects the elastic fibers of the middle coat, there seems to be little or no attempt at repair of this particular tissue, or even at the particular point diseased, while we know that there is a multiplication of the connective tissue cells in the deeper layers of the intima, associated with the formation of connective tissue fibrils, the process thus leading to distinct thickening of the wall of the intima. From this thickening the disease received its name of endarteritis. You will note that the thickening in the intima is to be regarded as a compensatory process to make good the weakness in the wall caused by a defect in the elastic tissue. You will also note that the new formation of tissue differs from the formation in a healing wound by the fact that it has occurred in a situation entirely devoid of a capillary supply of blood and nourished entirely by osmosis from the lumen of the artery on the one hand, and from the rather distant vasa-vasorum on the other.

This process of adaptation is often remarkably effective for long periods of time. In certain cases, however, the result is not so good. In the first place, the factors leading to the primary weakness are apt to continue and even to become intensified as age advances, and, in the second place, the very process of compensation, namely, the production of the thickened areas in the intima, carries with it dangers of its own. The more abundant the multiplication of the connective tissue cells and fibers, the thicker will be the patch formed in the intima, and, therefore, the stronger it will be, at least in the early stages after its formation, but you will also see that the thicker this patch is the further does its central portion become removed from the source of food supply, that is from the lumen of the artery on one side, and the vasa-vasorum on the other. In very many instances it results that there is not sufficient osmosis to maintain the nutrition of the newly formed arterial patch and there results some process of degeneration within this patch itself. Either the thickened area becomes calcified, or it breaks down into a soft granular material,

which ultimately may break through into the lumen of the artery giving rise to an atheromatous ulcer, or else some other allied form of degeneration occurs. Occasionally the adaptive thickening is excessive, and the thickened intima so far invades the lumen of the artery as to cause obliteration, more or less, complete.

So much for the pathologic anatomy of arteriosclerosis and for a general view of the process. It may be pointed out, incidentally, that if marked weakening of the elastica occurs unaccompanied by the thickening, the conditions are present which lead to the production of aneurysm. It may also be noted that thickening of the artery walls is a physiologic process as is seen, for example, in the obliteration of the ductus Botalli and of the vessels of the umbilical cord.

As you know, the thickening may be diffuse throughout the entire arterial system, or it may be in patches, or it may be limited to one or more arterial branches. In the form resulting from physical strain, as you meet with it probably in Norfolk among your longshoremen, it is the arch of the aorta which is most apt to be affected. Where the weakening results from luetic toxin there are apt to be patches in the aorta and particularly in the vessels at the base of the brain. In other instances it may be only the renal arteries or some other group of vessels that shows the affection. In a notable form of the disease described by Gull and Sutton the small arteries and capillaries throughout the body show the process of thickening and fibrosis.

I have remarked that the weakening of the elastic fiber is looked upon as the first anatomic alteration of the vessel wall, but it is clear that this must be due in turn to some cause. The general causes of this disease have already been considered and I need only say that the hypotheses have been advanced; first, that the toxins responsible for the process act directly upon the elastic fibers; second, that they act through the vasa-vasorum, and, third, that they act indirectly by throwing greater strain upon the arterial walls in general. According to this last point of view, the presence of the toxins gives rise to vaso-motor spasms with constriction of the smaller arteries and arterioles and sometimes with hypertrophy of the smooth muscle in these smaller vessels, the vaso-motor constriction in turn leads to heightened arterial tension which, of course, throws greater strain upon the elastica in the artery walls, until finally the elastica gives way, and either atrophies or ruptures.

In concluding, a few words may be said as to the relation of the altered arteries to organic diseases. In the majority of cases there occurs in arteriosclerosis an increase in the tension of the blood. This, of course, is reflected back upon the heart and throws more work upon the left ventricle, leading to hypertrophy and usually, as well, to dilatation. Again, if the blood supply of an organ is appreciably diminished by obliterating endarteritis, there will result degenerative processes in the tissue whose nutrition is interfered with. This occurs most notably in the case of the kidney, and arterial thickening is recognized as one of the common causes of chronic Bright's disease. In the same way the nutrition of areas in the brain, in the heart muscle itself, or in any other part of the body, may be impaired.

It is clear from this consideration and it is also well shown clinically, that when once inaugurated a process of sclerosis tends to perpetuate itself with increasing celerity. The reason for this becomes apparent when you reflect that the original cause usually remains or becomes intensified with age, and that more and more strain is thrown upon the remaining elastic fibers, as more and more fibers give way to the injurious influences to which they are exposed. In this way it is plain the disease becomes cumulative.

I may mention, in concluding, that there are certain cases, such as those to which Councilman has drawn attention, in which a generalized affection of the arteries is not accompanied either by heightened blood pressure or enlargement of the heart, but by diminution of the heart and of the organs of the body generally.

THE TREATMENT OF ARTERIOSCLEROSIS.*

By WILLIAM S. GORDON, M. D., Richmond, Va.
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The assertion that arterio-sclerosis is occasionally cured is difficult to prove, if curing the disease implies a restoration of the arteries to

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their normal condition. In a certain proportion of cases the progress of the morbid processes may be checked and the removal of the structural changes be partly accomplished. By tempering the wind to the shorn lamb remarkable results are frequently obtained even in advanced cases. Symptoms may disappear and the patient be enabled to live in comfort and comparative safety for many years. With a full appreciation of the importance of prophylaxis, and with clear conceptions of the causes and effects of the disease, we can discuss for a few moments the principles of treatment and the application of special remedies.

There are four cardinal principles to be observed. Toxæmia should be combated; the circulation should be equalized and hypertension reduced by the removal of mechanical causes which produce repletion of the vessels, peripheral resistance, and increased force and frequency of the heart's action; the damage sustained by the arteries should be repaired as far as possible, and complications and coincident disorders be treated.

To meet the first indication—the relief of toxic conditions of the blood, whether of chemical or microbic origin—it is important to eradicate syphilis, plumbism, malaria, alcoholism, gout, nicotine poisoning, indicanuria or any other disorder which a careful search may disclose. It is needless to enter into the details of treatment for these disorders. At the same time elimination from the skin, kidney and bowel ought to be promoted.

The removal of mechanical causes is of vital importance. Repletion of the blood vessels by excess of food or fluid; excess of physical and mental exercise; too sudden or too great a reduction of atmospheric pressure, and all other factors that tend to unduly quicken the circulation or add to its normal burdens are instrumental in producing a loss of elasticity in the vessel walls followed by a compensatory increase of fibrous tissue. Whatever can be done, therefore, to equalize the circulation is of distinct advantage in retarding the progress of the disease. The sudden and fatal complications of arterio-sclerosis are frequently due to an over-loaded stomach, a debauch, an overstrain of the physical powers, or to violent mental or emotional excitement. The beneficial effect of a calm life is often observed in the aged, who, with arteries hardened for years, live in comparative safety and comfort. In such persons the heart and kidneys have usually escaped serious damage.

How far the fibrous overgrowth may be absorbed is not known. The main reliance for this purpose is some preparation of iodine, the use of which will be subsequently considered.

Inasmuch as the ultimate effects of arterio-sclerosis are owing chiefly to its coincident or complicating disorders, too much stress cannot be laid upon their management. If the heart and kidneys, especially, can be held to their work, imperfect though the work may be, the diseased blood vessels may be able to perform their functions for years.

Having laid down the general principles by which the physician should be governed, we are in a better position to discuss special measures and their peculiar indications. The diet should be carefully regulated as to quantity and quality. It should be light, wholesome, simple, easily digested and adapted to the requirements of the case and the idiosyncrasies of the individual. Excess of proteids should be avoided and all useless articles of food be interdicted, such as pastries, highly-seasoned dishes, strong tea, coffee or cocoa. Alcoholic stimulants and tobacco had better be omitted. Even the use of water can be abused. One of my patients, who died of chronic nephritis, used to drink several gallons of water a day, despite the warnings given him; and the amount of damage sustained by his blood vessels from over-distension was incalculable. There is no inflexible rule for diet. A close study of the symptoms, and regular examinations of the urine and other excretions, will enable the practitioner to advise a diet which will not produce gastro-intestinal disorders with the formation of toxins. The golden rule is to strike the proper balance between the intake of food and proper elimination.

Exercise is a matter of importance. In the early stages of arterio-sclerosis it is promotive of good, provided it be taken in moderation. Even with a failing heart, and in appropriate cases, resistance movements are serviceable. On the other hand, the excellent results obtained

from rest in bed must be borne in mind. A quiet body and a calm mind will often do more for the reduction of hypertension than any one measure—or than all other measures combined. Incidentally, sunlight in moderation and fresh air are valuable auxiliaries. In this connection it may be well to recall the fact that hypertension is, to a certain extent, compensatory and beneficial, and that evil consequences may ensue from lowering the tension too suddenly or too rapidly. The careful observer will watch his patient and endeavor to regulate the tension according to the condition of the blood vessels, heart, kidneys, brain and other organs, and according to the symptoms of the individual case. At times the hypertension, due to the hypertrophy of the left ventricle and the sclerosed arteries, must be disregarded and the weakened right ventricle be supported by digitalis and remedies of similar action.

A few drugs of undisputed value may be considered. An occasional dose of calomel, or other cholagogue, is often followed by marked improvement. Constipation should never be neglected. Diuretics, such as digitalis, alkaline salts and other remedies that will suggest themselves, play an important part in elimination. Calomel is indirectly one of the best diuretics, as the sluggish kidneys often excrete freely after the torpid liver is stimulated. The usefulness of the iodine salts has been questioned. While they may not accomplish all that has been claimed for them by some therapeutists, there is no doubt that they are decidedly beneficial in many cases. There is no established rule by which to administer them. In one case large doses may be required; in another, small doses are indicated. To derive lasting benefit from their use the patient should take them for a long period of time, with an occasional intermission. Iodism may be often prevented by administering the iodides with alkalies. The substitutes for the alkaline iodides can be successfully used when indicated.

The prompt effects of the nitrites in reducing hypertension are well known. In emergencies—such as angina—amyl nitrite is the most quickly acting. The spirit of glyceryl trinitrate acts more slowly, and sodium nitrite slowest of all, but its effects are the longest maintained. Judiciously used, they may be employed over long periods of time with marked relief.

Arsenic, and even iron, are agents that may serve to enrich the blood when anæmia exists.

Trunecek's serum has been advocated, but the results from its use have not been noteworthy. The same may be said of a calcium-free diet.

Physical measures are beneficial in certain cases. Massage, warm baths and electricity have their place, acting by improving the capillary circulation and as derivatives of the blood from the internal organs to the surface. Whatever combination of measures be used, the patient should be impressed with the importance of faithfully and persistently carrying out his physician's instructions.

5 *East Franklin Street.*

REMARKS ON THE DIAGNOSIS AND TREATMENT OF PYELITIS.*

By H. A. FOWLER, M. D., Washington, D. C.

Pyelitis and pyelonephritis are common. The diagnosis of pyelitis and pyelonephritis is uncommon. The explanation of this discrepancy lies in the fact that many of these cases are overlooked altogether, or the symptoms which are present are wrongly attributed to some other condition. The reason for this seems to be twofold. In the first place, the milder cases may exhibit few symptoms and are recognized only by the application of special methods of examination. In the second place, the severer type often gives rise to symptoms which are referred to other organs.

In many cases the diagnosis is simple, in some it is difficult, while in a few cases it may be practically impossible. But in any case a correct diagnosis can be made only by careful and painstaking examination, often involving the use of instruments of precision. Too often involvement of the kidney and its pelvis is unrecognized and not even suspected while the diagnosis of "cystitis," equally satisfying and inaccurate, is conveniently made. But in this class of cases in particular a correct diagnosis is the important thing. It is absolutely essential to proper treatment, and more especially still, perhaps, enables us to avoid the mistake of treating the patient for something he does not have.

Just a few words as to the nature of renal

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infections: Surgical inflammation of the kidney is always microbic in origin. A great variety of organisms has been implicated. The colon bacillus has been most frequently isolated. Others commonly found are staphylococci, streptococci, proteus of Hauser, tubercle bacillus, gonococcus, etc. Among the rarer forms may be mentioned the diplo-bacillus of Friedländer. These bacteria reach the kidney chiefly in two ways (1) by way of the blood stream, hæmatogenous or descending infection, and (2) by way of the ureter, ascending or urogenous infection. In order for infection to take place it is not sufficient merely that bacteria shall reach the kidney. It is probable that bacteria are excreted by the kidneys in great numbers without causing infection. Certain predisposing causes or conditions are necessary which favor the deposition and growth of the bacteria within the kidney or its pelvis by reducing the resistance and rendering the kidney more vulnerable. Hence, any condition which favors infection is quite as important as the infecting organism itself. The most important of these are congestion, retention, and trauma or lesion of the kidney tissue. Some damage to the kidney always precedes infection. Any condition which favors stagnation of urine invites infection, such as stricture of the urethra, and especially hypertrophy of the prostate gland. v. Frisch in his article on pyelitis enumerates at length the conditions and diseases associated with infection of the kidneys. But we are not concerned with the etiology just now.

Strictly speaking, pyelitis is inflammation of the pyelon or pelvis of the kidney. When the process extends to the kidney itself, we call the condition pyelonephritis. Clinically, we cannot distinguish a pyelitis pure and simple. It is only an anatomical or histological conception. Therefore, when we speak of pyelitis clinically we include pyelonephritis, because inflammation of the pelvis is rarely isolated; it is practically always associated, at least clinically, with inflammation of the kidney itself.

The diagnosis in any suspected case is made by a careful, thorough, painstaking, routine examination covering the following points in the order named: (1) History of the case; (2) examination of the patient; (3) examination of the urine; (4) cystoscopy, and (5) ureteral catheterization.

While a complete, accurate history is always of the utmost importance in every case, the information obtained by the objective examination is of far greater value from the standpoint of diagnosis in cases of pyelitis. The history may at times be quite misleading, as, for example, where the symptoms are all vesical, and it is only by due attention to the examination of the patient that the true nature of the trouble is revealed.

The examination of the urine is all important. And by this is not meant the examination as usually made of a specimen sent to the laboratory and there left standing for several hours before examination. The urine must be *freshly* voided into preferably three glasses and examined *at once*. The urine in renal infection always contains bacteria and pus, except in those unusual cases of closed pyonephrosis, or temporary blocking of the ureter. Hence, it is absolutely essential that the urine be fresh in order to examine for infection. With the exception noted above, the urine in all three glasses is uniformly turbid, due to bacteria and pus (total pyuria). It is usually acid (colon infection), and of low specific gravity. Acid total pyuria with infection is quite characteristic of kidney infection. When the bacteria are numerous the urine has a peculiar opalescent color due to the bacteria. This is best seen by examining the glass of urine held between the eye and the electric light.

There is nothing characteristic about renal pyuria by which it may be distinguished from the pyuria of cystitis. The difficulty is greatest where the two conditions coexist. The ony absolute method of determining the origin of pus in the urine, that is whether renal or vesical, is by the use of the cystoscope with catheterization of the ureters when necessary, the symptoms in any given case may be misleading. And right here I wish to emphasize one point particularly, the most important point in my paper, namely, in renal infection the symptoms are often entirely vesical—there is absolutely no symptom referable to the kidney itself. I do not think this point is as generally appreciated as it should be. Many times the genito-urinary surgeon is asked to examine a patient for stone in the bladder where the symptoms from the beginning to the end of the trouble are entirely vesical, only to find that the bladder is abso-

lutely normal and that the trouble is higher up in the urinary tract. It not infrequently happens that such patients are treated for long periods for bladder trouble when in reality the kidney is the seat of the trouble. By way of emphasis I will refer very briefly to one or two cases which have recently come under observation.

A boy 19 years of age consulted me on account of frequent urination, with terminal pain localized in the urethra. There were absolutely no symptoms referable to the kidneys nor had there been at any time. The urine was filled with pus, and some blood was present. No bacteria were seen in a fresh specimen. The urine was acid—a symptom complex pathognomonic of tuberculosis. Examination for tubercle bacilli was abundantly positive. The cystoscope showed involvement of the left kidney. I later removed this kidney which showed a marked tuberculous invasion of the upper pole. Without the evidence given by the cystoscope the localization of the trouble in the kidney would have been impossible. In fact, the boy had been sounded for stone in the bladder by a prominent general surgeon and a suprapubic cystotomy had been proposed and refused.

Mrs. E. P., 45 years of age, was referred to me for examination of the bladder for stone on account of frequent urination with tenesmus. There was a history of repeated attacks of this kind followed by periods of freedom from pain, extending over a long period of time. During the past six months there had not been a day of freedom from pain. The most distressing feature was the almost constant desire to urinate, associated with pain and tenesmus. Examination revealed a normal bladder. Urine obtained by simultaneous catheterization of the ureters showed a colon infection of one kidney while the urine from the other was sterile. Here again the symptoms were misleading as they were referred always to the bladder.

In many cases of pyuria of renal origin the amount of pus is sufficient to discolor the urine and the affected side is readily apparent by watching the jet of urine as it escapes from the ureteral opening. This condition, however, obtains only in pyonephrosis and the severer forms of pyelonephritis. In the milder cases of infection, even with a turbid urine and a considerable vesical irritability, the cystoscope shows a normal bladder and ureteral openings. It is often difficult in such cases to be absolutely certain which is the affected side or whether both kidneys may not be involved. The following case will illustrate this point.

This patient, aged 46 years, gave an interesting history of calculous disease beginning ten years before when he passed a small calculus. This was preceded by a sudden attack of pain localized in the region of the right kidney. Four years later he passed a quantity of pus at one time, associated with chills and fever, and followed in six months by the passage of a second calculus. Since that time he had attacks on the average of one every nine months, characterized by chills, high fever, and pain in the right kidney and bladder. The last one, two months ago, kept him in bed two weeks and he was confined to the house for more than one month. His temperature reached 105°, and he had severe pain in the kidney, bladder and glans penis. An X-ray examination for stone in the kidney was negative. At this time he first came under my observation. The urine was turbid and filled with pus and short, fat bacilli. Cystoscopy revealed a localized cystitis over the trigone. Inspection of the ureteral openings showed little difference, and it was impossible to make out from the ureteral swirls whether one or both kidneys were involved. Double simultaneous catheterization revealed pus and bacilli in the urine from both kidneys. The bacteriological examination was made by Dr. Neate, of the Army Medical School, who found the pneumo-bacillus of Friedländer in pure culture. In this case involvement of the second kidney was determined by the use of the ureter catheter. Indeed, one could not say that either kidney was involved without the examination of the specimen direct from the kidneys. And it is only by the use of the ureter catheter that the diagnosis can be made with certainty in many of these cases. And for this reason many cases must be overlooked.

Very often in the male infection of the prostate occurs secondarily to the kidney and this complicates the picture and renders the diagnosis much more difficult. I feel certain that many patients are subjected to long courses of treatment—sounded, irrigated, instilled and even opened up for drainage of the bladder in an effort to clear up a pyuria and relieve vesical

symptoms which are due to disease higher up. The only safe attitude to assume to avoid such mistake is to assume that every case of total pyuria is renal in origin until proven to the contrary. As a matter of fact, the bladder is much more resistant to infection than we generally suppose. In the absence of stone, stricture, and hypertrophy of the prostate, a total pyuria is almost certain to be renal in origin.

We may briefly summarize our remarks on the diagnosis of pyelitis somewhat as follows:

(1) The diagnosis of "cystitis" is a favorite one to make in every case of pyuria. It is often inaccurate and misleading. Cystitis is relatively uncommon in the male, except when associated with stricture, stone, or hypertrophy of the prostate, and is then always secondary. In many cases of so-called cystitis the infection is in the kidney and its pelvis.

(2) Infection of the kidney pelvis often gives rise to symptoms generally considered characteristic of inflammation of the bladder, such as frequent and painful urination, tenesmus, and pain in the bladder and urethra.

(3) There is nothing characteristic of renal pyuria by which one can differentiate it from that of vesical origin.

(4) The only absolutely accurate means of determining the source of pus in a case of pyuria is by the use of the cystoscope with or without the ureter catheter.

(5) It is highly important to determine the source of pus in every case of pyuria in order that proper treatment may be employed and the patient spared unnecessary and useless therapy.

(6) Every patient complaining of urinary disorder associated with pyuria should be given a thorough, routine examination to determine the source of the pus and the nature of the lesion producing it.

TREATMENT.

The treatment of pyelitis depends, obviously, upon the etiology. The indications clearly are to prevent extension of the disease to and in the kidney, reduce the inflammation, remove the infection, and correct, as far as possible, any gross pathological changes in the urinary tract which act as predisposing causes to renal infection. Treatment must, therefore, be prophylatic, medical and surgical.

Cases of acute pyelitis, those following acute infectious diseases, for example, and some cases of the milder forms of chronic pyelitis tend to heal spontaneously. The most that is necessary is proper diet and flushing the kidney by drinking large quantities of fluids, mineral waters, milk, lemonade, teas, etc. Rovsing recommends boiled and distilled water, four or five liters daily. Casper suggests from six to ten liters daily. The mechanical flushing of the kidneys by this means is extremely important and cannot be emphasized too strongly. Care must be taken in the use of mineral waters that the urine is not rendered alkaline and thereby producing conditions more favorable for the growth of bacteria.

For controlling the infection urotropin and helmitol are among the best internal antiseptics we possess. Urotropin may produce marked irritation of the kidneys and bladder. It should, therefore, be used cautiously by beginning with small doses and increasing rapidly when well borne. I have noticed the irritant effect of this drug in only a very few cases, although using it constantly. In one case its use was followed by incontinence of urine which promptly disappeared on withdrawal of the drug.

Santal oil, cubebs, copaiba, and other balsams have been extensively used to allay inflammation, irritation, and control dysuria. On the other hand, these substances, by their irritant properties, have been shown to cause pyelitis. Here we are confronted with the interesting dilemma; these drugs are recommended for the treatment of a condition which they themselves are capable of producing. It would seem best to discontinue their use in pyelitis.

As already pointed out certain gross pathological changes occurring in the urinary tract predispose the kidneys to infection. These must be corrected and all obstruction to the free escape of urine removed. Phimosis and stricture of the urethra must be properly dealt with. In patients with hypertrophy of the prostate producing obstruction, the kidneys are involved in the majority of cases. Regular emptying of the bladder must be secured by removal of the obstruction or by catheter. Retention catheter is to be preferred to regular catheterization in acute and desperate cases. In a recent case of pyelonephritis of a severe type complicating hypertrophy of the prostate with complete obstruction of urine, surprisingly

good results were obtained by the use of salt solution in large quantities in the bowel. There was profound digestive disturbance which precluded the taking of water by mouth. Salt solution was introduced into the bowel by the continuous drop method and by high irrigations. Continuous drainage was secured by a retention catheter. I am convinced this patient's life was saved by this simple means. I have never before seen a patient so desperately ill recover. There is another therapeutic hint suggested by this last case. In these desperate cases where little or nothing can be taken by mouth and urotropin is indicated, this may be given per rectum in doses of thirty grains or more.

In the commonest of all forms of pyelitis, that complicated by calculous disease, it is unnecessary to emphasize the importance of removing the calculi.

Local treatment by lavage of the pelvis through the ureter catheter has been carried out in a relatively small number of cases. Good results have been reported. In selected cases this method of treatment appears to be valuable, but its application is limited by technical difficulties and it must, therefore, be restricted to a small number of cases.

More recently still vaccines or bacterins have been extensively employed, both stock and autogenous vaccines being used. One must be guarded in interpreting the results obtained by their use. The type of cases in which they are indicated at times runs a remittent course and one may wrongly attribute good results to the vaccines. I have always used the autogenous vaccines made for me by Dr. Neate, of the Army Medical School. In the case of infection with the pneumo-bacillus of Friedländer, there has been a very marked improvement in the patient's general and local condition. Urotropin and large quantities of fluids were taken at the same time. I have never seen any appreciable effect on the number of bacteria produced by the use of vaccines. The reports in the literature are conflicting, but the general impression prevails that in pyelitis vaccine treatment has not been as successful as in some other conditions.

The Cumberland.

PERITONITIS AND ITS TREATMENT.

By STUART McGUIRE, M. D., Richmond, Va.

President, and Professor of Clinical Surgery, University College of Medicine; Surgeon in Charge St. Luke's Hospital, etc.

INTRODUCTORY.

At one time the peritoneum was supposed to constitute a part of the lymphatic system, communication being established by openings called stigmata or stomata. It is now believed that the endothelial lining is everywhere continuous, although in the subdiaphragmatic region there is intimate connection with the lymphatics of the pleura. The peritoneum has an area of over 17,000 square inches, which makes it nearly equal to that of the skin.

Its importance does not lie in the extent of its surface, however, so much as in its capacity for absorption. Experiments on animals show that the peritoneum, in one hour, will take up from 3 to 8 per cent. of the body weight. Fluids are absorbed, both by the lymphatic and blood vessels. Solid particles, such as pigments and bacteria, are absorbed by the lymphatics. The most active areas of absorption are the diaphragmatic and omental regions. In one hour after the peritoneal cavity has been injected with lamp black, if it be gently washed under the tap, the diaphragmatic and omental areas will remain black, all other areas becoming clean.

Peritoneal absorption depends upon several factors, chief among which are, first, the pressure of the abdominal muscles; second, the rhythmic pump-like action of the diaphragm, which, by virtue of its constant contraction and relaxation, aspirates fluids and particles from the peritoneum and forces them onwards; and, third, the peristaltic action of the bowels, which, among other functions, distributes fluids evenly and prevents them accumulating by gravity in the pelvis.

PERITONITIS.

There are three forms of peritonitis—chemial, mechanical and bacterial. Chemical peritonitis is the type produced experimentally on animals by injection of iodine, turpentine or croton oil. Mechanical peritonitis is the type produced by the presence of foreign bodies, such as a silk ligature, or a gauze sponge or diaphragm. Bacterial peritonitis is the type produced by microbic infection. In actual clinical experience we often see all three of these types follow one on the other—perforation of

the appendix, admitting chemical fluids; the escape of enteroliths and fecal masses, causing mechanical irritation; and finally the implantation of bacteria, resulting in septic infection.

Suppurative peritonitis is suppurative inflammation attacking the peritoneum. No two text-books adopt the same classification of the different degrees of this condition. While not strictly scientific, the one given by Senn is probably the best from a practical standpoint. He uses the terms, first, septic peritonitis, in which the infection is so acute and virulent that death follows before sufficient time has elapsed for pus to form; second, diffuse suppurative peritonitis, in which the patient lives long enough for the infectious agent to produce pus, but the process is so rapid that the system is unable to retard its dissemination or prevent its diffusion over practically the entire peritoneal surface; and, third, local suppurative peritonitis, where, owing to the character of the infection there is the formation of pus, but its development is so slow that the system has time to form adhesions of omentum, intestines and other viscera, and thus make a wall by which the infectious fluid is confined to a limited portion of the peritoneal cavity.

Etiology.—Peritonitis may be caused by infection through the blood-stream, but much more commonly it is due to perforation, either in the region of the pylorus, or somewhere near the ileo-cecal valve. It may be due to a stab or gunshot wound, to ulcer of the stomach or duodenum, to rupture of the appendix or gall-bladder, perforation of a typhoid ulcer, or be secondary to abscess of the liver, suppurative pancreatitis, or infection of the Fallopian tubes.

The staphylococcus albus appears first and disappears last in all abdominal infections of intestinal origin. The germ is non-pathogenic, has a protective function, and by causing a rush of fluid and leucocytes to the site of trouble, results in local immunity against infection. This protective function is proven by the fact that peritoneal injections of the staphylococcus albus and colon bacillus culture in mixture results in peritonitis, while if the staphylococcus albus injection precede that of the colon bacillus by three hours, peritonitis does not occur. Peritonitis is usually the result of a mixed infection, the colon bacillus, the streptococcus, the pneumococcus, the bacillus pyocyaneus, the typhoid bacillus, the gonococcus and the staphylococcus pyogenes aureus are the most important in the order given. The colon bacillus is undoubtedly the most virulent and dangerous organism. It is a well established fact that its pathogenic power depends, to some extent, upon the location of the perforation and the condition of the bowel. It is least virulent in the jejunum, more so in the ileum, and reaches its maximum power in the cecum. Its virulence is greatly increased in diarrheas and where it is developed under pressure, as in strangulation of the gut.

Peritonitis is dangerous directly in proportion to the absorption. It is not the inflammation of the peritoneum that is fatal, but the toxins which are absorbed from its product that causes death. It has been a question whether inflammation of the peritoneum accelerates or retards absorption from the cavity. Murphy believes there is an early acceleration, with a later slowing of absorption, and that if the patient can be tided over the period of acceleration, all will be well. Much experimental work has been done to find a method to check absorption from the peritoneal cavity, such as the injection of nucleic acid and olive oil, but thus far without positive practical results.

Symptoms.—The symptoms of septic peritonitis are those of acute sepsis. They appear so quickly that they are often mistaken for shock. The temperature is often subnormal, the pulse is rapid and thread-like, the skin is cold and clammy, the face is pallid and ashy, the abdomen is flat and soft—there not having been time for distention or rigidity to develop. The patient is apathetic or indifferent; the mind, however, is clear. Death usually results in from twelve to twenty-four hours. On opening the abdomen at the post-mortem, the peritoneum is found red and angry, with perhaps the presence of a small quantity of bloody serum. There is no pus, because it has not had time to form.

The symptoms of diffuse suppurative peritonitis are plainly marked, as here they have time to fully develop. They first appear about twelve to twenty-four hours after the accident or operation. There is pain and tenderness of the abdomen, beginning about the umbilicus, but later becoming general. The temperature slowly rises, being first 100°, in a few hours

102° and 106° or 108° Fahrenheit. The pulse is rapid and wiry and progressively loses strength with the advance of the disease. The quality of the pulse is a better index to the condition of the patient than the temperature. Respiration becomes quicker and is thoracic in character; the abdomen becomes distended and its walls stiff and rigid. It is impossible to move the bowels by purgation, owing to paresis of the intestines from toxemia and distention. Vomiting is almost constant—the material consisting first of the stomach contents, then of mucus and bile, and finally, as death approaches, the patient turns the head to one side and without nausea or effort, regurgitates mouthfuls of black fluid, which has an extremely offensive odor. Upon examination it will be found to consist largely of blood, and it is believed that it has its origin from the congested gastric mucosa. The patient early assumes the dorsal position and lies with the trunk motionless and the knees and hips flexed. The face becomes gray and wears an expression of anxiety; the nose is sharp, cold and pinched; the eyes sunken, the cheeks collapsed and the lips blue. The intellect generally remains clear, and "while there is often a total lack of realization of the inevitable and usually dreaded end, it is as often thoroughly appreciated by the patient and viewed with a calmness which increases the awe which always attaches to the presence of the shadow of death."—Tyson. If the abdomen is opened either during life by the surgeon or after death by the pathologist, it is found to contain a large quantity of free, turbid fluid resembling pea soup. The intestines are widely distended, red and congested, and covered by numerous flakes of lymph.

The symptoms of localized suppurative peritonitis begin very much like those of general suppurative peritonitis, except that they are not so acute, and usually rapidly improve when the effort of nature is successful in confining the suppurative product to one part of the abdomen. The patient suffers pain first about the umbilicus then over the entire abdomen, and finally localized at the seat of the abscess. Tenderness is also at first general, but later bcomes local. The temperature is at first markedly elevated, but later may become normal. The abdomen is at first distended, but later tympanites disappears, and rigidity is limited to the region involved. Frequently a patient will come into the hospital with a normal pulse and temperature, little or no pain, and an abdomen that is flat and soft, except over the pus collection, where it is hard and tender. Sometimes the tension of the pus is so great as to make an abscess simulate a tumor. Again, careful palpation may elicit fluctuation. When the abdomen is opened, a quart or more of offensive pus may be found separated from the adjacent viscera by a barrier of lymph, the other portions of the abdomen being, to all appearances, normal.

The *diagnosis* of septic or suppurative peritonitis is based on the history and the symptoms just described. When in doubt, a blood count will often settle the question of whether or not pus is present. An increase in the relative number of polynuclear cells is an indication of the virulence of the intoxication, and the degree of leucocytosis is an evidence of the body resistance of the infection.

The *prognosis* of peritonitis depends, first, upon the character of the infecting organism, the gonococcus and pneumococcus being less fatal, for instance, than the streptococcus or colon bacillus; second, on the location of the perforation, as it is a well known fact that the germ increases in virulency from the stomach to the cecum; and, third, on the promptness and efficiency of the treatment applied. If every case could be operated on within twelve hours, the mortality would be reduced to a fraction of 1 per cent.

Treatment.—Murphy states there is probably no disease, not excepting diphtheria, since the discovery of antitoxin, in which changes in treatment have reduced the mortality percentages so noticeably as in the modern treatment of diffuse suppurative peritonitis. The present treatment was not adopted empirically, but was the result of deductions from scientific observations. It will, therefore, be necessary to briefly review the work of a number of men who each deserves credit for certain discoveries.

Muscatello demonstrated that the peritoneum of the upper abdomen or diaphragmatic region possessed much greater absorptive power than the peritoneum of the lower abdomen or pelvic region.

Clark saw the possibility of postural drainage, and advised elevating the foot of the patient's

bed, thus throwing the fluid by gravity to the surface which would most rapidly absorb it.

Fowler said that the principle of postural drainage was correct, but its application was wrong—that the fluid should not be drained into the patient, but out of him. He advised elevating the head of the bed, allowing the fluid to gravitate from the diaphragm where it would be absorbed, to the pelvis where it would be collected until removed by a drain.

Bond demonstrated that particles of indigo-carmine placed inside the anus would be carried upward by what he termed "reversed mucous current."

Cannon showed that, except during defecation, antiperistalsis is a normal movement in the large intestine, and that, owing to this fact, liquid feces are carried back to the cecum where the water element is absorbed.

Murphy suggested utilizing the foregoing observations in the treatment of suppurative peritonitis by injecting saline solution slowly into the rectum, depending on reversed peristalsis to carry it to the cecum where it would be absorbed. He reasoned that, owing to the patient being unable to take as much water as was being eliminated, he became dehydrated and the empty vessels of the peritoneum rapidly absorbed any fluid the cavity contained. If, by introducing a large quantity of fluid into the circulation, the vessels could be overfilled, then the peritoneum would be changed from an absorbing surface to a secreting surface, and in place of toxic fluids going into the circulation, there would be a flow of cleansing serum into the peritoneal cavity.

Oschner impressed the importance of quieting peristalsis by emptying the stomach by gastric lavage, prohibiting all food by mouth, and avoiding the use of laxatives and purgatives.

The treatment of suppurative peritonitis may be divided, first, into methods to prevent its occurrence; second, means to inhibit its progress when it begins; and, third, means to combat it when fully developed.

The preventive treatment of peritonitis consists, in an early diagnosis and proper treatment, of gastric and duodenal ulcer, cholecystitis and gall-stones, appendicitis, and other abdominal lesions which, if neglected, may lead to peritoneal infection.

The inhibitory treatment of peritonitis consists in gastric lavage to empty the stomach, application of ice-bags to the abdomen, placing the patient in Fowler's position, absolute prohibition of food and even water by mouth, and above all, avoiding the use of a cathartic.

The curative treatment of peritonitis when developed consists in an incision, the closure of the perforation if one exists, the insertion of a drain, placing the patient in an exaggerated Fowler's position, the administration of saline solution by Murphy's method, and the application of the principles of the Oschner treatment, which are equally essential after as before the operation. When peritonitis develops, the patient should be transported to the hospital in a sitting position. Those who come in an ambulance will frequently go back in a hearse. The operation should be performed without delay, but the anesthetic not begun until all preparations are made and the patient on the table. Nitrous oxide is stated to be the best anesthetic, but it is only practical in the hands of one experienced in its use. The skin of the abdomen should be sterilized by painting it with tinct of iodine, and the incision made at the point giving readiest access to the supposed lesion from which the infection has originated. As soon as the peritoneum is opened the perforation should be sutured, the gangrenous appendix ligated, or the condition, whatever it may be, quickly dealt with. No effort should be made to irrigate or even sponge out the abdomen. Murphy says: "Get in quick and out quick." Morris says: "Run while the pus is running." A drain consisting either of a large fenestrated rubber tube, or a split rubber tube containing folds of rubber tissue, as devised by Peple, of Richmond, should be inserted so as to reach the most dependent part of the abdominal cavity.

The patient should be put to bed and the head raised so that the mattress is at an angle of 45°, and maintained in place by either a swing or bed-seat. Saline solution should be administered by rectum continuously. The reservoir containing the fluid should be elevated from six to fourteen inches above the anus, and from one to two pints given every two hours. The flow must be controlled by gravity alone, and never by constricting the tube, as it is important, when the patient passes flatus, for the fluid to be able to flow back into the can. Murphy says that the ease of flow to and from the bowel en-

sures against overdistention and its expulsion into the bed.

If there is vomiting, a tube should be introduced and the stomach thoroughly washed out. No food or purgative should be given by mouth until convalescence is well established. Patients usually do not suffer from starvation, but if there is evidence of exhaustion, nourishment in the shape of peptonoids, panopeptone, or some other commercial food, together with whiskey, can be given by rectum. If pain or restlessness exists, small doses of morphia do good. If the heart flag or the kidneys are inactive, sulphate of sparteine should be given hypodermically in two grain doses, repeated at intervals of four or six hours. Under this treatment the mortality of diffuse suppurative peritonitis has been reduced from 80 per cent. to less than 5 per cent.

513 *E. Grace Street.*

CLIMATOLOGY OF THE SEABOARD AIR LINE REGION.*

By EDWIN GLADMON, M. D., Southern Pines, N. C.

A comprehensive discussion of the climatology of the Seaboard Air Line region would far transcend the usual limits of a paper of this character, and I purpose at this time to refer but briefly to its principal characteristics.

The Seaboard region comprises a vast domain. Between Richmond and Tampa, between Norfolk and Birmingham, between Wilmington and Rutherfordton, we see lowlands and highlands, sand hills and clay grounds, some terminals washed by the waters of the great Atlantic and Gulf of Mexico, and others far up in the cloud lands of the mountains. We read so much through modern advertising methods of the marvelous advantages and matchless scenery of other railroad lines, that we are apt to forget that from the standpoint of climatology the region tributary to the Seaboard Air Line is probably not equalled, and certainly not surpassed, by that of any other system in this country.

Climates are classified as warm, cold, and temperate, and are further divided in land and marine climates, the latter term embracing, not only the sea-coast, but islands as well. Practically the entire marine climate of the Seaboard would be classed as warm, and, when we consider the coast line from Norfolk to the west coast of Florida, we can truthfully assert that in extent, in beauty, in utility and in the infinite advantages it offers those in impaired health, it has no rival in the civilized world.

Land climates embrace those of high, low and moderate altitudes, as well as those on the level of the sea. Here, again, the Seaboard region offers in the way of warm inland climates the very highest type of each of these, excepting those classed as high. Viewed as a whole, there is not a single chronic disease of modern life, in which climate is a curative factor, that may not be benefited or cured by a sojourn in the Seaboard region.

Though we cannot boast of the highest mountains, the largest lakes, or the greatest cities, we have, what is infinitely more valuable, God's pure air and life-giving sunshine twelve months in the year. As a "Tar Heel" expresses it—

"Here's to the land of the long leaf pine,
The Summer-land where the sun doth shine,
Where the weak grow strong and the strong grow great;
Here's to the land of the Old North State."

That the strenuous work of fighting blizzards and snow storms agrees with some rugged natures in the North and East cannot be gainsaid, but there are many thousands who fall in this conflict with nature's forces. Even when the storms of Winter have passed, the rapid changes caused by the dampness and humidity of Spring and Summer also claim their victims. To these distressed ones the Seaboard region offers a safe and sure refuge, and fortunate, indeed, is the railroad that can and does take the almost helpless invalid and transport him where health and comfort will be his portion.

About the commercial possibilities of the South, much has been written, but of authoritative medical literature there is surely a dearth. Invalids do not, as a rule, follow blindly the alluring prospectuses of hotel men and resort towns, but are rather guided by their physicians. And in giving this advice and making their decisions, we can render these physicians material aid by placing on permanent record the hygienic advantages of our respective localities.

Nor would it necessarily follow that the so-

*Read at the meeting of the Seaboard Air Line Railway Surgeons' Association, at Birmingham, Ala., October 11, 1910.

liciting of invalids would result in adding the hopelessly ill to your population. Southern Pines is practically made up of people from the North and East who first came here in search of health. They now comprise our leading business and professional men and fruit growers. It is hard to leave home in search of health, but it is different when you can bring your home with you.

The objection that the South has climate, but nothing else, can no longer be asserted. Business opportunities here along many lines now surpass those of any other region; not, perhaps, in the making of millionaires, but with the certainty that intelligent labor will always receive an adequate reward.

Following out the suggestion that each surgeon place before the profession a statement of the climatology of his immediate vicinity, I will refer briefly to my own town.

Southern Pines is classed as an inland climate, of low altitude, this ranging from six to seven hundred feet. It is situated on the highest point of an immense sand ridge; in some places the sand is so deep that no bottom has been reached. To this porous soil and the thousands of long leaf pines surrounding, it doubtless owes, in a great measure, its reputation as a great natural sanitarium.

Naturally, such a climate first suggested itself as a resort for the tubercular, and many thousand of these unfortnates have been our visitors, but little by little they have been excluded from hotels and cottages, and are now rarely seen outside of the sanitarium. In their place have come sufferers from chronic diseases of the heart, stomach, liver, kidneys and nervous system.

In conclusion, I beg to offer some opinions, founded on an experience of thirteen years in this town, in the treatment of tuberculosis. As would naturally be expected, its influence is most marked on that class characterized by excessive secretion of pathological products. Cavity cases with marked softening do well here, and even in the last stages their worst features are mitigated. Even cases of acute phthisis, with its inevitably fatal result, find an abatement of their most distressing symptoms. Cases of mixed infection often have their sweats lessened or stopped, rigors cease and the fever lessened.

Cases with extensive consolidation, or of the pneumonic type, do not improve as rapidly as the variety just stated, though fibroid cases do nicely, especially in the aged. We have some fibroid cases in town who have lived here in comparative comfort for twenty years. The climate is suited to cases of empyema and pleurisy with effusion. Laryngeal phthisis here, as elsewhere, finds no specific in this climate. Bone and glandular tuberculosis do very well, though some cases are probably more influenced by a marine climate. Generally speaking, the climate is peculiarly suited to the ordinary type of tuberculosis, with its infiltration and softening, chills, fever and sweats.

Hemorrhage cases, I believe, do better here than in higher altitudes, especially the hemorrhages that accompany second and third stage cases. Some incipient cases of hemorrhage I have no doubt do well in higher altitudes, especially where they can stand the extreme invigoration.

The statements as to tuberculosis apply equally to the different forms of bronchitis and catarrh. Where secretions are in excess, improvement will follow; when of a dry or atrophic nature the reverse. Chronic asthmatics are markedly benefited, while simple hay fever is not.

The low humidity makes the climate of value in both muscular and articular rheumatism. For the same reason, it is suited to sufferers from chronic nephritis. The skin will do more work in a dry atmosphere than in a moist one, and we know the more work performed by the skin the less the burden thrown on the kidneys.

The environment of the place is likewise favorable to all forms of insomnia and nerve exhaustion.

What is true of Southern Pines is also true of other Seaboard towns, and for this reason, I believe the climatic advantages of the Seaboard region are as tangible an asset of the Seaboard Air Line as are its rolling stock and fixtures. It offers something more than the riches of mineral and timber lands, because it offers the prolongation of life itself. It has kindled anew the fires of hope in the hearts of thousands, and its beneficent mission is to bring happiness to many thousands more.

Department Of Analyses, Selections, Etc.

Conducted By

MARK W. PEYSER, M. D., RICHMOND, VA.
Secretary Richmond Academy of Medicine and Surgery, etc.

Foods in Tuberculosis.

Paul Paquin, Asheville, after quoting men of experience and cautious habits in the treatment of tuberculosis, says that their data sustain the claim that force-feeding in this disease is often a grave mistake; that its enforcement is not warranted save in those in whom it is found that over-amount is taken care of without auto-intoxication, without digestive disturbances of the stomach or bowels, without, in a word, any of the complex pathologic phenomena of alimentary clogging and its too common mortal results. For a very long time he has observed and practised along these lines of basic tuberculosis treatment, and has no hesitancy in saying that no physician helps a tubercular by treatment of any kind and never produces immunity by any for instance, which are proper and useful remedies in suitable cases, save as he first lays a proper and solid foundation by nutrition. Without this foundation temporary improvements may occur, but they are short-lived stimulations, for which, sometimes, doctors, some of them with great flourish of knowledge and enjoying great honors, are applauded, though the patients die after seeming and often promising uplifts.—(*Lancet-Clinic,* October 29, 1910.)

Acidosis in Children.

Gordon Sharp, before the British Medical Association, outlined the symptoms and treatment of idiopathic acidosis (cyclic vomiting) in children.

Symptoms.—Sweet odor of the breath, frequent respiration, the skin hot and dry, cheeks flushed, temperature ranging from 99 degrees to 103 degrees F., and drowsiness or semi-comatosed state, constipation and bilious vomiting. Everything was rejected, even a drink of water some time after it was taken. As soon as vomiting was over, the child fell back into the drowsy state. The poison was generally excreted by the stomach, as well as by other channels. The urine was often scanty, but always contained acetone and gave Legal's reaction. The bowels were often constipated, but where they moved freely and spontaneously, Dr. Gordon-Sharp considered it a hopeful sign. There was slight tenderness and pain, and always high up in the three uppermost areas, as if the spleen, pancreas and liver were affected. In the fatal cases, the coma increased, the mousy odor of the breath disappeared, the temperature rose to 103 degrees or even higher, clonic contractions of the muscles, or even convulsions, followed, and the vaso-motor centers failed. Towards the end, the breathing was often of the Cheyne-Stokes type. In cases which got well, the drowsiness or coma passed off, the patient passed water more frequently, the vomiting ceased, and a long draught of fluid was taken and retained and the bowels might move.

Mild cases need no treatment beyond a saline purgative and plenty of cold water or aerated soda water, and the withholding of all food till the child asks for it. He prescribes the following: Heavy carbonate of magnesium, 36 grains; sodium bicarbonate, 24 grains; powdered tragacanth, 3 grains; glycerin, 2 fluid drams; peppermint water to 3 fluid ounces. Two teaspoonfuls every one or two hours with or without water or aerated soda water. In the severe cases, the same mixture was given as often as the child was roused to pass water or to vomit. Aerated soda water or plain water was given in the interval; 10 grains of soda bicarbonate were also added to each tumblerful of aerated soda water. If the child requested this, a tablespoonful of milk was added to each tumblerful of fluid to make it palatable. When the child refused this also, only plain water was given. When vomiting recurred so frequently that the child got no rest, he then gave 1 minim of tincture of opium, 10 minims tincture lavender compound, and 10 minims of glycerin, with water to 1 fluid dram every hour till rest was obtained. He had seen a child sleep for five or six hours after a few doses of this mixture and awake refreshed.—(*Medical Brief,* November, 1910.)

Treatment of Fractures of the Shaft of the Femur—End Results.

Estes, South Bethlehem, Pa., after giving the answers of seven questions submitted by him to twenty-five prominent American surgeons, states that he thinks it fair to say that twenty-two advocate the open method, not as a last resort,

but as the proper method of reducing fractures of the shaft of the femur, either in the very beginning or just as soon as it is evident that the bones cannot be reduced or held in position by the old methods. Surgeons who have tried many times, and those who have studied radiograms of fractures, know that it is next to impossible to make actual coaptation of the fragments when the femur of a robust adult is broken at any point, without cutting down on the fracture and actually seeing the bones, and be able to remove the shreds and detritus which develop and cover the ends of the fragments. Transverse fractures above the condyles and fractures in the immediate neighborhood of the trochanter minor, always require the open method for proper reduction.

Estes does not recommend the open method as a routine practice for children, but thinks it far best in most cases of adults who are treated in a clean and well-conducted hospital. Summing up, he says that his study, observation and experience have convinced him that very few fractures of the femur treated by the old methods make an ideal cosmetic and functional recovery. Restitution of the fragments which formerly was supposed to be good, nowadays, by the use of radiograms, he is convinced were faulty. Recovery is possible and function may be restored only by the beneficence of a large ensheathing callus, and after the patient has practically learned a new equilibrium and locomotion by new adaptations of the skeleton and new use of the muscles. Some deformity is the rule.

The usual methods of measurements to show the result of union after fractures are themselves unreliable, and as asymmetry of limbs is the rule, comparisons of the two lower extremeties after union may give very incorrect results from simply measuring their lengths. Correct axial adaptation of the fragments and correct restitution are possible only when the restitution of the fragments has been exact. This is the special object to be attained, and not the preservation of any increment of length, though femora are not shortened when union occurs after thorough setting and retention of the fragment. General anesthesia is necessary in setting fractures of the shaft of the femur in robust adult patients. Experience of the majority of surgeons shows that exact restitution can only be obtained in fractures of the shaft of the femur by the open method to obtain actual sight of the fragments during the manipulations. Direct fastening of the fragments through an incision has been abundantly shown to be practicable, and, with asepsis, perfectly safe. Direct splinting is the most efficient method of holding the fragments in place.

When fragments are accurately replaced and held firmly in position, union occurs without the usual "callus." Union is quicker, no deformity results, and the disability of the patient is materially shortened. Roentgenology has taught the laity to trust to the evidence of a radiogram as an indication of the result of the treatment of a fracture. Modern surgeons must meet this new view by the habitual use of the modern method which has been found most efficient in restoring the integrity of a bone, and which adds but little to the danger of the treatment.—(*Therapeutic Gazette,* November 15, 1910.)

Warning Against the India-Ink Method for the Spirocheta Pallida.

J. H. Barach, Pittsburg, after experimenting with various inks, says that since the accurate determination of the presence of *Spirocheta pallida* is at present already often complicated by the presence of *Spirocheta refringens,* to use the India inks would be to add one more source of error. The spirochete-like objects seen with these inks seem capable of assuming various shapes and sizes and while most of them, by the experienced microscopists, would not receive very serious consideration, some of the specimens that I have come across at a magnification of 1,300 diameters and higher, could delude even the expert. I know a number of men who have occasion to diagnose many cases of syphilis, and who have been using the India-ink method for some time. These men do not consider themselves expert miscroscopists, and they admitted that they may have made this error.

In the past, diagnosis of this disease has been based largely on full development of the clinical symptoms, but at present, it is being frequently made on finding the spirochetes. For that reason, the greatest accuraey must be exercised, and the possibilities of error should be reduced to a minimum.

In consideration of the above findings, I offer this experience as a warning against the India-ink method by the non-expert and the general practitioner to whom it has been so strongly recommended.—(*Jour. A. M. A.*, Nov. 26, 1910.)

Editorial.

The Virginia Medical Semi-Monthly Will Continue,

Though the loss by death of the late editor, Dr. Landon B. Edwards, is felt as a staggering blow by those associated with him. His helping hand and keen perception in many difficulties of editorial work will be sadly missed, but the beacon light he set still shines, and will continue to guide us.

In assuming full charge of affairs, it will be our endeavor, by diligent effort and high ideals, to publish a journal in which the profession at large may take a pride, and, in this effort, we earnestly ask the hearty co-operation and good-will of all our old friends and patrons.

With the first October issue, 1910, we were fortunate in associating with us Dr. Mark W. Peyser, who for the past sixteen years has been Secretary to the Richmond Academy of Medicine and Surgery. The excellent work already done by him in conducting the Department of Analyses, Selections, etc., has been the subject of much favorable comment. But the work of progress was not intended to be stopped here, as, before the death of the late editor, other changes were contemplated. We are not in position, at this time, to make definite announcement as to matters under consideration, though we hope to perect our plans without undue delay.

This Journal was established by Dr. Landon B. Edwards as a *Monthly* in April, 1874, when there was a comparative dearth of medical journals in the South, and he served as its editor continuously for thirty-six years. In response to a demand of the times for publication oftener than once a month, it was changed to a *Semi-Monthly* in April, 1896. Many of the contributors attracted to its pages have been eminent in the profession throughout the country, and in recognition of the regard in which the publication has been held, the late editor was from time to time the recipient of many honors, having served as President of the *Association of American Medical Editors,* and also of the *American Medical Publishers' Association.*

In continuing the publication of the *Semi-Monthly,* we cannot better express our policy than to adopt a quotation from the Editorial Salutatory of the old *Monthly* of April, 1874:

"Our *Monthly* is entirely independent. It is not gotten up in the interests of any particular medical college, or other institution or corporation, but is the patron of all that are deserving of commendation. The object will be to keep it up to a high tone, and fully abreast with the best journals of its grade and character.

"Articles of *merit* will be accepted and published, irrespective of the *localities* from which they may emanate."

Therefore, in accordance with the policy outlined above, we will strive to serve the best interests of our noble profession, ever mindful that all efforts along this line must fail if they include not an allegiance to the *Medical Society of Virginia.*

As occasion arises, we trust the profession will favor us not only with scientific medical papers, but also news items, personals, etc., of general interest.

We also take this opportunity to thank our many friends for their expressions of sympathy, which we regret we have been unable to acknowledge personally.

Charles M. Edwards, M. D.,
Editor and Manager.

Epidemic of "Pink Eye."

Judging from the newspaper reports a few days ago, it would seem that the V. M. I. cadets were given a furlough because of an epidemic of so-called "pink eye," over three hundred cases having developed at the Institute. Incidentally, it was mentioned that there then was a co-incident mild outbreak of typhoid fever, of which there were five cases, and which was thought to be due to the unsanitary condition of the milk cans. Investigation by the health authorities demonstrated this to be erroneous, and the trouble was traced to polluted water of the town of Lexington, where other cases of typhoid developed.

This was quite sufficient reason for closing the Institute, and Washington and Lee University promptly followed the same course.

But it would have been bad policy to close the schools because of the outbreak of "pink eye," if no typhoid had manifested itself, because this disease, whilst very contagious, when properly managed, does no harm to the eye-

sight and gets well in two or three weeks, leaving no bad traces.

The very contagiousness of the affection would be sufficient reason to keep the cadets at the Institute until they recovered, as their distribution all over the State was apt to spread the disease in every locality to which one of the victims went, as each one is a focus of infection in the home to which he returns.

This disease, epidemic catarrhal conjunctivitis, or acute contagious conjunctivitis, is due either to the Koch-Weeks bacillus, or the pneumococcus. Koch investigated it in Egypt in 1883, and found a bacillus resembling mouse septicæmia, and Weeks, in 1886, made pure cultures of this bacillus and produced the disease in healthy conjunctivæ.

The investigations of Gasparini, in 1893, and subsequently, of Gifford and others, demonstrated that the pneumococcus was more frequently the active agent in this affection than the Koch-Weeks bacillus, but a specially susceptible condition of the conjunctiva must be present for the pneumococcus to become active, as it is often found in healthy eyes, without producing any reaction; whereas the presence of the Koch-Weeks bacillus invariably starts trouble. The two types can only be diagnosticated by the use of the microscope.

The clinical signs of either type are very similar.

It is very contagious, and spreads rapidly where a number of persons are segregated.

Atmospheric influences are supposed etiologic factors, but the infection is carried afterwards by toilet articles, such as towels, handkerchiefs, etc.

Thirty-six hours after infection, the eyelids smart, the eyes become red, and the conjunctiva swollen, accompanied by a discharge which is at first mucus, but later becomes purulent. The bright red color of the eye gives the name "pink eye." Use of the eyes gives pain. In three or four days, it has reached its acme, though the acute stages may last ten days or more. A yellow mass at the inner corner in the morning is an almost certain diagnostic sign of the disease. If improperly treated or neglected, it may become chronic and last in a modified form for months.

The best way to cut short the inflammation is to use cold applications to reduce the temperature of the conjunctival sac, and thus destroy the infecting bacillus. The eyes should be kept clean by a mild antiseptic solution, and the use of sterile vaseline (1 to 3,000 bichloride). Argyrol, 25 per cent. should be dropped into the eye frequently, every one, two or three hours, according to the amount of inflammation.

As the inflammation subsides, nitrate of silver solution, one-half of 1 per cent., may be dropped into the eyes once daily until the discharge ceases.

The prognosis is favorable in all cases that are not neglected.

The Virginia Health Conference on Tuberculosis.

Representatives from the tuberculosis leagues in the State, from the boards of supervisors of a number of counties, and delegates from many municipalities met in session with tuberculosis experts at the Mechanics' Institute, Richmond, December 2d and 3d. Dr. Ennion G. Williams, the State Health Commissioner, called the meeting to order, and conducted the election of officers, Captain W. W. Baker, of Chesterfield county, being made permanent chairman, and Dr. Douglas S. Freeman, of Richmond, official secretary.

As the meetings were open to the public, and treated of the white plague in all its phases, it is believed that much good has been accomplished. The topics discussed included "Tuberculosis in the Cities," "Open Air Treatment of Tuberculosis," and "Tuberculosis Education." A prominent feature of the Conference was the exhibit made by the State Health Department, Catawba Sanatorium, and the various State institutions and cities in Virginia. Pine Camp Home, the newly established sanatorium for Richmond consumptives, was opened for the inspection of visitors.

At the Anti-Tuberculosis Association held during the Health Conference, the only measure of importance adopted was the elimination of the annual membership fee, all members of local health leagues hereafter to be considered members of the State Association.

Virginia State Epileptic Colony.

The Board of Directors and Executive Officer of this Colony, in the first annual report of their work recently issued, give a most interesting

statement of the history, purpose and progress of Colony care in Virginia from its incipiency.

The Colony, which is situated on James River near Lynchburg, will be opened next March, at which time one hundred white male patients will be received from the various State Hospitals. The present arrangement of buildings is such that it is impracticable to care for patients of both sexes at this time.

Too much credit cannot be given the Board of Directors and its Executive Officer, Dr. A. S. Priddy, for their work in the past nine months. It seems a most fitting tribute that one of the cottages should be known as the Drewry-Gilliam Building, in honor of Dr. Wm. F. Drewry and Mr. Robert Gilliam, of Petersburg, two pioneer workers for Colony care of epileptics in Virginia. The present Colony is the outgrowth of one formerly run in connection with the Western State Hospital, under the most efficient care of Dr. J. S. DeJarnette.

Pine Camp Home for Consumptives, Richmond, Va.,

Was formally opened November 28th, eight patients being received at that time for treatment. In order to meet the demands of its many applicants, the capacity for accommodation, which is now twenty, will be increased as rapidly as the funds of the institution will permit.

The object of the home is to prevent the spread of tuberculosis, as well as to render assistance free of charge to all Richmond consumptives, so that patients will be received at all stages of the disease. Dr. Giles B. Cook is physician-in-charge, and Miss Florence Black, chief nurse.

A reception was tendered the public and visiting delegates during the recent session of the Health Conference in Richmond.

The Medical Examining Board of Virginia

Will hold its next semi-annual meeting in Lynchburg, Va., December 20-23, 1910, to examine applicants for the practice of medicine in Virginia. Registrations should be made on Tuesday the 20th, as examinations will begin promptly at 9 A. M., Wednesday morning. For detailed information, address the secretary, Dr. R. S. Martin, Stuart, Va. Dr. R. W. Martin, of Lynchburg, is president of the Board.

Obituary Record.

Landon Brame Edwards, M. D., Richmond, Va.

Son of late Rev. John Ellis Edwards, D. D., and Elizabeth Agnes (Clark) Edwards. Born Prince Edward county, Virginia, September 20, 1845. Academic Education—Private Schools, Lynchburg Military College, Randolph-Macon College. Enlisted as private, 1863 (before he was eighteen years of age), Southside Heavy Artillery, Confederate States' Army, at Drewry's Bluff, Va.; remained in that command until close of war; paroled at Appomattox, April, 1865. Studied Medicine—Medical College of Virginia, 1865; University of Virginia, 1866; graduated M. D., University City of New York, 1867. House Physician, Charity Hospital, Blackwell's Island, New York City, 1867-68. Assistant Physician, Private Nervous Disease Hospital, Lake Mahopac, N. Y., 1868. Secretary Lynchburg (Va.) Medical Society, 1868-71. Active in organizing, and one of founders, Medical Society of Virginia (November 2, 1870); secretary continuously from organization (except 1883); elected Honorary Fellow, 1892. Married, January 17, 1871, to Nannie Pettyjohn Rucker, of Lynchburg. Moved from Lynchburg to Richmond, Va., 1872. Member State Board of Health from organization, 1872, to 1908. Founder *Virginia Medical Monthly*, April, 1874 (changed to *Virginia Medical Semi-Monthly*, April, 1896). Lecturer—Medical College of Virginia—Anatomy, 1874, Materia Medica and Therapeutics, 1875, on New Remedies, 1876, and Medical Jurisprudence, 1877. Surgeon First Regiment, Virginia Volunteers, with rank of major, 1875-82. Acting assistant surgeon, U S. Marine Hospital Service, Port of Richmond, 1880-82. On organization University College of Medicine, 1893, elected professor Practice of Medicine; chairman Faculty of Medicine, 1898-1907; professor Clinical Medicine, 1900; on resignation in 1907, elected emeritus professor of Medicine. Member various medical organizations, including American Medical Association; Richmond Academy of Medicine and Surgery, of which he was at one time president, as also former president American Medical Editors' Association and of American Medical Publishers' Association. Honorary member West Virginia State Medical Society; of Medical and Surgical Society, District of Columbia; of National Association of Railway Surgeons. Contributions to literature—all medical—chiefly as editor. Author of "Simple Continued Fever," *Twentieth Cent. Prac. of Med.*, 1899. Member Delta Psi Fraternity; A Mason; Pythian.

It is an easy and pleasant task to enumerate the honors received and the high positions held by a man occupying a prominent place in the public eye; but how difficult it is to describe the private virtues, the cheerful spirit, the industry, the upright character, the forgiving disposition, and the loving charity of the noble heart of one whom we love!

Landon Brame Edwards was born September 20, 1845, in Prince Edward County, Virginia. As was the custom in those days, his father, a

Landon B. Edwards

distinguished minister of the Methodist Church, had him educated at the best private preparatory schools. He entered Randolph-Macon College, where he pursued his studies with distinction, till this institution was closed by the Civil War.

Filled with patriotic zeal for the defense of his native State and the cause of the South, he enlisted, a mere boy, as a private in the Southside Artillery of the Confederate Army in 1863. With this command he saw active service at Drewry's Bluff, Howlett House, and other points. While performing his honorable part as a soldier, he never lost sight of his future lifework. He eagerly took advantage of the kindness of the Army Surgeons to assist and study the varied injuries and diseases attendant upon armies in conflict. He closed his army service with General Lee at Appomattox, April 9, 1865. He graduated in medicine from the Medical Department of the University of the City of New York, March, 1867, having previously spent one year each at the Medical College of Virginia and the University of Virginia. After a year's hospital work in New York, he returned to Lynchburg, Va., in 1868, to engage in private practice. Here he married, and remained till 1872, when he moved to his late residence, Richmond, Va.

He was one of the leading organizers of the Medical Society of Virginia, a charter member, and secretary from its organization. In all the forty-one years, he missed only one meeting—the last, from which he was detained by his final illness, which resulted in his death on November 27, 1910. In April, 1874, he founded the *Virginia Medical Monthly* (changed to the *Virginia Medical Semi-Monthly*, 1896), which at once took and held the leading place in medical literature of the South. He was one of the founders of the University College of Medicine, and held for a number of years the chairs of Practice and of Clinical Medicine.

It would be a tedious task to name all of the other many positions which came to him unsought, but so richly deserved, and the duties of which he so fully discharged. The question often asked is: How did he find the time? Its answer is not difficult. In the first place, his love and capacity for hard work were phenomenal. For a great many years he kept in close touch with a large practice, edited all of the manuscripts which appeared in his Journal, did all of his own correspondence by hand, and attended to all of the State Society work himself. Any one of these positions would have kept a man busy. It was only by arduous and persistent effort, together with the burning of much midnight oil that he was enabled to accomplish what he did. He was a clear and vigorous thinker and an incisive writer.

Next to his great capacity for exacting detail work must be placed his will power. Often when suffering from the extreme lassitude of his disease (interstitial nephritis) he would call for assistance in dressing, go down in his office, and at once start on his multiferous labors, seeming to gather strength and inspiration from the mere fact of doing things.

After all, his steadfast friendship and loving kindness were the characteristics which most endeared him to the hearts of his patients and brother practitioners. How many who read these lines will not recall pouring into his sympathetic ear some doubtful point in diagnosis, or some misunderstanding with some fellow physician, or fancied or real slight by the State Society, and how patiently he listened and then counselled the right and proper course? An amiable man is often a weak man; but not so in this case. While ever a ready listener, he was positive and firm in his convictions. He was a great man—not as the world considers greatness of power, pomp, and wealth—but he had the kind of greatness which ever lives in the hearts of those who knew him, and admire work, energy and brotherly love.

M. D. Hoge, Jr., M. D.

Resolutions on Death of Dr. Landon B. Edwards.

Whereas, The Richmond Academy of Medicine and Surgery has learned of the death of our colleague and friend, Dr. Landon B. Edwards, and bowing to the dispensation of an All-wise Providence, desires to place on record our esteem for him as a man and appreciation as a Physician and Fellow of this Society. He was a man of many lovable traits of character which endeared him to his friends, of marked loyalty to his profession, whose standards and ideals it was his life's endeavor to elevate. Therefore, be it

Resolved, That the Academy attend his funeral in a body.

Resolved, That we extend to his family our tenderest sympathy in its sore bereavement.

Resolved, That a copy of this preamble and resolu-

tions be spread upon the records and published in the daily papers and medical journals of this city.

(Signed) J. N. Upshur,
J. R. Gildersleeve,
M. D. Hoge, Jr.,
Committee.

At a called meeting of the Academy of Medicine of Danville, Va., the following were adopted:

That we have heard with profound sorrow of the death of Dr. Landon B. Edwards, and desire to place on record our high esteem for him; and, more, our appreciation of his services for forty years as secretary of the Medical Society of Virginia, and especially do we, the committee, remember that in the dark days of the history of the Society he, almost alone, with a perseverance and loyalty born in few, tided over the Medical Society of Virginia and was recognized almost as its father, and he lavished his love and labors on it as his offspring. Our love and gratitude follow him.

W. L. Robinson,
Chairman.
L. E. Harvie,
W. C. Day,
Committee.

The following preamble and resolutions were adopted by the University College of Medicine:

Charles H. Chalkley, Lewis Wheat, Thomas J. Moore, Hunter Holmes McGuire, and now Landon Brame Edwards! These, of the founders of the University College of Medicine, are,

"Some we loved, the loveliest and the best
That from His vintage rolling, Time has prest,
Have drunk their cup a round or two before,
And one by one crept silently to rest."

Born September 20, 1845; graduated in medicine, 1867; Secretary of the Medical Society of Virginia since 1870 (except 1883); Professor of Practice of Medicine, 1893-1900; Professor of Clinical Medicine, 1900-06; Emeritus Professor of Clinical Medicine, 1906-1910, in the University College of Medicine; Editor and Proprietor of the Virginia Medical Semi-Monthly; author of several monographs in medicine; physician and consultant for years in this community, Landon Brame Edwards, by the dispensation of Divine Providence, entered into his everlasting rest, Sunday, November 27, 1910.

One of the founders of the University College of Medicine, one of the most devoted and enthhusiastic workers in its upbuilding, one of its most loyal and faithful teachers, Doctor Edwards's death takes from this institution another of its strong men who, in the past, stood as,

"A promontory of the sea
Again which, though the waves beat continually,
Yet it both itself stands, and about it are
Those swelling waves, stilled and quieted."

A teacher, an author, an editor and a physician of note, though he was, Dr. Edwards will be remembered for the tender and brave heart, for the sweet and considerate affection, for the loyal and strong love he possessed for his friends, his people, his home and his God. He was a man who drew men to him in great love. He lived a life of service; unselfish service. His life was a consecrated one of service to his profession, of service to all whom he attended in sickness, of service to the young medical student, of service in the organization and protection of the interests of his professional brethren in this State.

His life was rich in deeds of kindness, in tender acts of brotherly love, in devoted fealty to honest living. He was a prince to his professional brethren. He was a true physician; a loyal friend; and noble man: a man of peace, kindness, gentleness—but brave! For, at last, when "The angel of the darker drink," at the "river's brink," offered the "cup to his lips to quaff," "he did not shrink."

Whereas, Death has claimed him, be it resolved by the Faculty of the University College of Medicine—

That the invaluable service of our lamented friend, Landon B. Edwards, M. D., to the University College of Medicine as one of its founders and faithful teachers is recognized and appreciated.

That the great service he rendered this community as a physician and a citizen is consonant with the high position he attained in the esteem and affection of his brethren.

That in his death we feel a deep sense of sorrow which only can be assuaged by recalling the deeds of his gentle, true and pure life.

That we extend to his bereaved ones—to whom he was a loving husband and loved father—our sincere sympathy in this hour of grief.

Alexander G. Brown, Jr.,
Chairman.
J. Allison Hodges,
John Dunn,
Joseph A. White,
Edward McGuire,
Committee.

Expressions of Sympathy.

Among the numerous telegrams received were the following:

Jarratt, Va., November 28, 1910.

As official head of the Medical Society of Virginia, I tender on its behalf sincere sympathy. Am sure I voice the sentiment of every member of the Society when I say that this body has lost its best friend, and the profession of the State a noble example of the ideal physician. Regret that my engagements are of such importance that I cannot attend funeral.

(Signed) O. C. Wright, President.

Newport News, Va., November 28, 1910.

We tender our heartfelt sympathy to you in your sad bereavement. The profession has lost its best friend, and Virginia one of its foremost citizens.

(Signed) Joseph T. Buxton, Vice-President, Medical Society of Virginia; Clarence Porter Jones, Councilor, First District; J. W. Ayler, Chairman Necrological Committee; J. Wilton Hope, Member Legislative Committee; George J. Williams, Member Judiciary Committee.

A committee of four also represented the physicians of Newport News at the funeral.

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Original Communications.

PURULENT OPHTHALMIA OF INFANTS—A PLEA FOR LEGISLATIVE ENACTMENTS FOR ITS PREVENTION.*

By JOSEPH A. WHITE, A. M., M. D., Richmond, Va.
Professor of Ophthalmology, University College of Medicine, etc.

In presenting this subject for your consideration, I am not entering upon a new field. It is one with which you are all familiar. Every one here present who has attended cases of confinement has had experience with this dreadful trouble, either in patients of his own, or as a legacy from some mid-wife.

The medical profession knows its cause, its infectious character, its dangers to sight, its prophylaxis, and its treatment when preventive measures have not been taken. Still, notwithstanding this universal knowledge, notwithstanding the efforts that have been made to control it, the ranks of the blind are every year largely recruited by these little ones, who have unnecessarily lost their sight from this disease.

What is the natural conclusion? Does it not mean that we are derelict in our duty, and that the children who lose their vision by ophthalmia neonatorum do so through the ignorance or criminal negligence of those who preside at the birth of the child?

As the experience of each one of you may have been limited to a very small number of cases, possibly only one or two, you may not be aware that at least 25 per cent. of the blind children in the schools for the blind in the country are unnecessarily blind.

Dr. George Foggin, Honorary Ophthalmic Surgeon to the Royal Victoria School for the Blind, states that ophthalmia neonatorum is responsible for more than one-third of the blindness of the world.

STATISTICS.

It is very difficult to get exact statistics, but a canvass of our schools for the blind gives some idea of the enormous havoc it plays among our infant population.

I give here the percentage of blindness due to this disease:

New York State School for the Blind, Batavia, N. Y.	30.76
Pennsylvania Institute for the Blind, Overbrook, Pa.	44.33
Perkins' Institute for the Blind, Boston, Mass.	30.25
Colorado Springs for the Blind, Colorado Springs, Col.	42.85
Western Pennsylvania Institute for the Blind, Pittsburg, Pa.	28.57
Missouri School for the Blind, St. Louis, Mo.	31.57
Connecticut State Board of Education for the Blind, Hartford, Conn.	12.50
Ohio State School, Columbus, O.	19.44
Maryland School for the Blind, Baltimore, Md.	30.76
Ontario Institute for the Blind, Brantford, Ont.	21.73
Sheffield School for Blind, England	42.36
Henshaw School for Blind, England	45.00
Blind Asylum, Staunton, Va.	45.00

Thirty-eight of the seventy-nine blind inmates at Staunton having lost their sight under one year of age.

Mr. Snell's report of the high per cent. due to this cause led the British Medical Association to demand some legislative action towards the prevention of ophthalmia neonatorum, and, as a result, the British Parliament enacted suitable laws to this end.

According to statistics gathered by Weeks, purulent ophthalmia occurs in from one-half of one per cent. to two and a half per cent. of births. In 80 per cent. of the cases both eyes were affected, and nearly 20 per cent. suffered permanent impairment of vision.

Are not these figures appalling? Should not something be done to stop this destruction of eyesight by a disease so easily prevented, when

*Read before the forty-first annual meeting of the Medical Society of Virginia, held at Norfolk, October 25-28, 1910.

preventive medicine is being so vigorously and successfully applied in other directions?

We know that it is due to an infective germ getting into the eyes at, or shortly after birth, that this germ, in the greatest number of cases, is the gonococcus, always in the worst cases, and we know that the silver salts, properly used, will effectually prevent or cure nearly all of them.

Until 1881, practically all children with this affliction became permanently blind. In that year, however, Professor Crede, of Leipsic, director of the Maternity Hospital, discovered and announced that a drop of a 2 per cent. solution of nitrate of silver placed in the eyes of a new-born infant destroyed the germ of ophthalmia neonatorum if it was present, and, moreover, did no harm to healthy eyes if it was not. Therefore, as we are not always sure when the possibilities of the disease exist, this solution should always be used in the toilet of the child. Since this announcement, the percentage of ophthalmia neonatorum in maternity hospitals all over the world has been reduced from 10 per cent. to one-fifth of 1 per cent.

If the toilet of the new-born baby's eyes is properly performed, even without the silver salts, it would do much to prevent infection, but there are many obstetricians and nurses who, unmindful of the danger, are careless about this important point, and mid-wives rarely or ever give any attention to it. The silver solution should form part of every accoucheur's armamentarium, and invariably used, but a 1 *per cent. solution* is generally sufficient, and less likely to cause silver catarrh than a 2 per cent. solution, and, in the hands of nurses and mid-wives, much safer.

If, in spite of a properly performed toilet and prophylactic treatment, infection manifests itself, should not something be done to save the child's sight and prevent others being infected?

RESPONSIBILITY.

If the child becomes blind or others become infected, when such cases occur in the practice of a recognized physician, through his carelessness or neglect, in having proper treatment instituted at once, should he not be held responsible? Should not the Department of Public Health have supervision over such cases, with authority to impose some penalty for such culpable carelessness, just as they have in other dangerous diseases?

In the last few days, a child eleven days old was brought to an ophthalmic surgeon in Richmond, with a cornea already perforated and the other badly ulcerated. The mother had been attended by a reputable physician, who took no precautions against infection, and the child was not under proper treatment until too late to save its sight. Is this not a case of gross carelessness, or culpable ignorance?

The ophthalmic surgeons of Richmond out of their recent experience have reported to me twenty cases, ten attended by mid-wives, nine by reputable physicians, and one by a medical student. In not a single case was any prophylaxis used. Nine of these children lost one eye and four both eyes.

Is not this report a commentary on modern, up-to-date preventive medicine? Nine reputable physicians doing no more than the ignorant mid-wives who attended the other cases, and this, too, in spite of the fact that they were fully cognizant of the probability of the infection and knew how to prevent it.

Is not this criminal negligence, and should they not be made to shoulder the responsibility?

Very few physicians are sufficiently familiar with the treatment of purulent ophthalmia to take the responsibility of treating it, and the services of an ophthalmic surgeon can always be had in the poorest of cases through the eye dispensaries, or, the hospitals, and the way to be sure of this is by an immediate report of a case to the Board of Health, *within six hours* of obtaining such knowledge. The Board of Health should have the power to enforce such a regulation with physicians, mid-wives, nurses and parents, in every case where a discharge from the eyes of a new-born babe shows itself.

For the benefit of those persons who may be so situated that it would not be possible to get the services of an ophthalmic surgeon, within a short time, it may be well to state that when the prophylactic use of the silver solution has failed to prevent infection, the best treatment is the repeated use of the silver salts, argyrol and protargol, 25 per cent. solution of the former, or 15 per cent. solution of the latter, at short intervals, to check the discharge.

The old remedies of nurses and mid-wives,

such as mother's milk, raw beef, tea leaves, raw potatoes, wet clay, saliva and poultices do no good and many of them do harm. Nothing but a germicide is of any value.

Therefore, we may conclude, that in nearly every case, the cause of the child's blindness is either neglect of the physician in charge to recognize the seriousness of the disease and to see that the child has proper treatment, or, if no physician is in charge, to the ignorance of the attendant mid-wife, or parents of the child.

MID-WIVES.

We must then institute a campaign of education, not only among physicians, but it must include mid-wives and parents. Of course, the most serious problem is the mid-wife. Their incompetency and the trouble their ignorant methods cause are familiar to all physicians and some legal action should be taken to bring them under the control of the Board of Health.

In New York, 42 per cent. of births are attended by mid-wives; in Chicago, 86 per cent.; in Buffalo, 50 per cent., and in other large cities, especially with a large foreign population, the proportion is about the same. With us, most of the negroes and poor whites are attended by mid-wives.

With these facts before us, you can see the importance of licensing and registering them.

It would be well, if practicable, to make them show that they have had some training before being licensed. They should be compelled to report every birth, and also every case of ophthalmia as soon as it develops—they should be held responsible for not using the prophylactic measures against ophthalmia, under penalty of losing the license, or a fine, or both.

Through Dr. Lucien Howe's efforts, an excellent mid-wife law was passed by the State of New York two or three years ago, and modifications thereof, or improvements of it, are now on the statute books of a number of States—about sixteen. They are obliged to meet certain requirements before being registered, and are held responsible for neglect in reporting births or ophthalmia promptly.

This whole subject belongs as much, if not more, to the domain of the obstetrician, as to the ophthalmologist. But it is only within recent years that text-books in obstetrics have given any attention to the frequent occurrence and danger of ophthalmia neonatorum.

The teaching of obstetrics, except in a few of the schools, does not class up with the teaching in the other departments of medicine. It is rather academic than practical. Probably this is due to the inadequacy of obstetric material for teaching purposes. If the medical students were taught by bed-side instruction the diagnosis and treatment of these cases,* their skill and knowledge would be recognized and utilized, to the gradual extinction of mid-wife practice, and ophthalmia neonatorum among those attended by mid-wives would become a rare trouble, and blindness be materially decreased.

PUBLICITY.

But our main dependence for the eradication of this preventable disease, is a wider knowledge of its causes and dangers. We must make the public know and understand what it is, and what should be done to prevent it. As in all other phases of preventive medicine, our strongest ally is the public, and when it has gotten an intelligent idea of the subject, our task will be very nearly accomplished. To this end, the American Medical Association three years ago appointed a committee on ophthalmia neonatorum with Dr. F. Park Lewis, of Buffalo, as chairman, and with sub-committee in each State composed of three physicians, an ophthalmologist, an obstetrician and a sanitarian. For Virginia, the committee consists of Dr. J. A. White, ophthalmologist, of Richmond; Dr. Rufus S. Kight, obstetrician, of Norfolk, and Dr. R. W. Martin, sanitarian, of Lynchburg. In some States, these committees have associated laymen with them, and in New York, a Special Committee on Prevention of Blindness, was appointed by the New York Association, for the blind, through the efforts of Miss Louisa Lee Schuyler. This committee was given an appropriation by the Russell Sage Foundation to meet expenses. Its work is partly educational—distribution of phamplets, giving lectures, making exhibits, etc.—and partly to secure legislation, all under the guidance of the medical profession. It has already accomplished much in both ways, but much remains to be done.

Many medical theses have been written—

*This plan has been adopted for some years in the University College of Medicine, Richmond, Va., and every graduate of Medicine has had practical experience in labor cases before he receives his diploma.

physicians have discussed the various methods of prevention and cure, but without taking the public into our confidence, we will have only uphill work. A campaign of publicity should be instituted and the newspapers, which claim to stand for better health and morals, could do much, if they could be induced to give the plain, unvarnished facts about the plague to the public.

It should be taught what produces it, how it comes about through the ante-natal infection of the mother, and the dangers of such infection to both mother and child, and outside the newspapers, no one can do more in this crusade than the obstetrician and family physician.

Moreover, as a great help to this end, young people of both sexes should receive better teaching upon a subject of very vital importance, viz, sexual hygiene.

Here we strike against a wall of granite in the puritanical and prudish notions of many good men and women, who, while professing their willingness to do everything to mitigate this evil of blindness, are horror-struck at the idea of giving youths and girls such instructions in all important sexual matters as will lay the proper foundation for keeping morally and physically clean.

Probably they do not know that our hospitals are filled with innocent women being constantly operated on for pelvic diseases, due to an infection that such knowledge might have prevented, or their view point might change.

If the husbands of these women had been properly instructed in their youth, and had known the risks and dreadful sequence of an apparently simple gonorrheal infection, would not the percentage of such cases be materially decreased?

So, too, the Public Health Department can do much by the distribution to mid-wives and mothers of circulars of advice, giving instructions* as to the causes, dangers, methods of infection, and prophylaxis of ophthalmia neonatorum. Most of these cases occur among the poor, and they must be aroused to the necessity of preventive measures.

Dr. F. Park Lewis, in an article on Prevention of Blindness, says: "When mothers are made to understand that it is not true 'all babies have sore eyes' and that birth infections do not 'get well of themselves'; that when inflammation of the eye of the new-born babe occurs, blindness is imminent; and when they are made to know that they need only report the existence of ophthalmia in order to secure for the child prompt and proper care, our problem will be solved."

The Board of Health can also distribute ampules or tubes containing the chosen prophylactic with specific directions for its use, as some are already doing.

But Health Boards, while always willing to take any action demanded of them by responsible physicians, or, association of physicians, can do nothing without having the authority to do so conferred upon them by legal enactment.

REPORTING BIRTHS.

The accurate registration of vital statistics is a necessary requisite of an efficient modern health service, and the Congress of this United States, by joint resolution, has called upon the various States to co-operate in establishing such registration. It is the most important of all sanitary measures, and should be vigorously urged until carried out successfully in every State in the Union.

Now, the registration of births is necessary to determine the vital statistics and we should have laws requiring the registering of births *within thirty-six hours,* as in New York. This would be valuable in putting the public authorities in touch with the obstetrician, or mid-wife who presided at the birth, and thus determine their fitness for the work, and hold them responsible for the outcome in each case.

This society can help the cause by passing a resolution asking our Legislature to pass such laws in this respect as have been passed in other States. The State, also, has as much right to make the necessary regulations to stamp out a pestilence which breeds such affliction as to pass any other sanitary measure.

PROTECTION.

Moreover, the infant is entitled as a minor to such legal protection from the danger of blindness, as he has to be protected from being robbed of his property. If the State safeguards his eyesight, which is more valuable than any property, in doing so the State protects itself

*Appended is a copy of the circular distributed by the New York State Department of Health.

against the burden and expense of caring for those made unnecessarily blind.

ECONOMIC ASPECT.

Here arises the economic question. Is it not cheaper for the State to afford such protection than to have to assume the greater burden?

Wurdemann and Magnus have given us some interesting figures as to the economic value of vision. A court in Texas adjudged a verdict of $7,000 for the loss of one eye only, which only partially limited the owner's efficiency.

There are over 60,000 blind people in the United States, and of these from 15 per cent. to 45 per cent. are so from ophthalmia neonatorum, an economic loss of $7,000,000 annually.

It is well within bounds to estimate that blindness in infancy, if the individual lives out the normal period of existence, results in an economic loss of not less than $10,000, and this can all be prevented by a little care, the use of a simple remedy and with very little expense.

Dr. Wheeler says that "the significance of a single case of unnecessary blindness is so great, that it will not lend itself to mathematical computation. To the individual thus injured, the damage is not measurable by the ordinary standards of value." Moreover, it costs more to teach the blind than those who see. A child can be educated in the public schools for $30 per annum, a blind child at Batavia and elsewhere costs at least $350.

It is urged, therefore, that the Governor and Legislature be asked to pass such legal enactment as will protect the infant from needless blindness, and the State itelf from the burden which such blindness must entail.

A bill, requiring the father of the child, if he is actually residing in the house at the time, or any person in attendance upon the mother at the time, or, within six hours after the birth, to give notice in writing to the health authorities of the district in which the child is born in not less than *thirty-six hours* after its birth, should be passed.

REPORTING OPHTHALMIA.

In addition, clauses should be inserted requiring a report within *six hours* if any eye trouble manifests itself.

Sufficient penalty for non-compliance with the law should be required, and the health authorities be empowered to enforce it. The best law now in force in America is probably the one in Massachusetts, of which I quote these sections:

"Massachusetts Law, *Section* 49.—Should one or both of the eyes of an infant become inflamed, swollen or red, and show an unnatural discharge at any time, within two weeks after its birth, it shall be the duty of the nurse, relative or other attendant having charge of such infant, to report in writing within *six hours* thereafter, to the Board of Health, of the city or town in which the parents of the infant reside, the fact that such inflammation, swelling, and redness of the eyes, and unnatural discharge, exist. On receipt of such report, or on notice of same symptoms given by a physician, as provided by the following section, the Board of Health shall take such immediate action as it may deem necessary in order than blindness may be prevented. Whoever violates the provision of this section shall be punished by a fine of not more than one hundred dollars.

"*Section* 50.—If a physician knows that one or both eyes of an infant whom or whose mother he is called to visit, become inflamed, swollen or red, and show an unnatural discharge within two weeks after the birth of such an infant, he shall immediately give notice thereof in writing over his own signature to the Board of Health of the town; and if he refuses or neglects to give such notice, he shall forfeit not less than fifty nor more than two hundred dollars."

The effect of such a law would be to bring to the notice of the health department within a short period the knowledge of the birth of a child, and whether the attendant physician or mid-wife has taken the required precaution against ophthalmia neonatorum, as in many of the States where such laws have been passed, the notification blanks have the question, "Have you used a prophylactic against ophthalmia neonatorum? If not, why?"

If purulent ophthalmia manifests itself, the notification has to be made earlier than if it does not, because the important thing about such cases is promptness. Delay is dangerous, and in many cases fatal to vision. There should be no hesitation in enforcing the law and punishing any one who trifles with an infant's vision, and one good lesson would go a long way. The fear of arrest and punishment educate the attendant upon a birth, quicker than any amount of hand bills and lectures.

Some physicians object to such a law, because they claim that ophthalmia neonatorum, being so often of gonorrheal origin, to report it with the name of the parents would be a breach of professional confidence.

This is straining a point to escape a little trouble in making a report, because the parents, even of the better classes, rarely or ever know the real cause of a discharge from the eyes, or, even if they did, the mother's love for her offspring would overlook every consideration to save the sight of the child.

In one way, the law might prove inoperative when its enforcement is attempted before a jury, as the ignorance of the latter may let the guilty one off with a slight or no punishment, on the grounds of persecution, or "because all babies have sore eyes" as an erudite jury in Connecticut recently recorded a verdict of acquittal in the case of a guilty mid-wife.

Even if we were so unfortunate as to have such a fiasco in our first case of attempting to enforce the ordinance in Virginia, the notoriety attending the arrest and prosecution would act as a deterrent against subsequent violation of the law.

In conclusion, I will quote again from Dr. F. Park Lewis his summary of the objects which are aimed at:

1. Organized and concerted effort on the part of the doctors, the sanitarians and the public.
2. Education through publicity, better training of mid-wives, nurses, and others, by means of public addresses, etc.
3. General and uniform mid-wife laws.
4. Free distribution of a prophylactic, with advice as to its necessity.
5. Insertion on every birth certificate of the question as to whether a prophylactic has been employed, and if not, why?
6. Earlier notification of births.
7. Compulsory reporting of ophthalmia neonatorum, with a penalty affixed for its neglect.
8. Arrangement with hospitals for reception of mother and child when ophthalmia neonatorum develops.
9. Provision when cases are reported, whereby the Board of Health is given authority to take such immediate action as may be necessary to prevent blindness.

When these effective and practical measures have been taken, as we hope they may, in the not distant future, we shall have the gratification of knowing ophthalmia neonatorum to be a governed pestilence, and blindness from this cause should be so infrequent and disasters so rare, that we shall have practically wiped out one of the most prolific causes of blindness from our land.

LITERATURE.

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VAGARIES OF DISEASE IN INFANCY AND CHILDHOOD.*

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The expression of the reaction of a living organism to an aphysiological stimulus constitutes disease in its broadest sense. Members of the same species, under the same environment, behave toward specific stimuli in much the same way, and thus we have established today definite clinical and pathological entities dependent upon definite exciting causes. Such reactions are, however, modified by certain well recognized factors, among which may be reckoned race, age, sex, et cetera.

Age has to do not only with the nature of stimuli to which the organism may be exposed, but exerts a potent influence, both on the resistance shown by the organism and the manifestations of its reaction to such stimuli. Thus we come to distinguish diseases of infancy and childhood, diseases of adults, and finally diseases of old age. The relatively greater importance of that period of life prior to and including puberty, in its relation to disease, has led to the evolution of pediatrics as a special branch of medicine.

Pediatrics differs from most other special subjects, however, in that the conditions with which it has to deal constitute at least 50 per cent. of the work of the average practitioner.

*Read before the George Washington Medical Society.

In spite of this fact, we may still see instruction in such special branches as diseases of the eye, diseases of the ear, nose and throat, orthopedic surgery, etc., receiving a number of periods equivalent to that in diseases of children.

The period of life to which pediatrics directs attention may be subdivided into various periods, in which by virtue of food and environment, or both, it is predisposed to special disease.

First, the premature infant, to whose body the mere extra uterine existence proves an unnatural stimulation, thereby lowering its powers of resistance, so as to render it exceedingly susceptible to the slightest disturbance.

Next the nursling, little better from the standpoint of resistance, yet withal prepared for exposure to the outer air. The skin thin and delicate, heat regulating mechanism easily thrown out of equilibrium and finally a partially developed digestive system, whose disorders far overshadow all else in the period. With respect to this digestive system the infant may be considered as distinctly fetal, being absolutely dependent upon the mother for its normal development. During the nursling period, too, are seen the baneful influences of artificial feeding, largely dependent upon the profuse bacterial life and the foreign food elements present in most substitutes.

From the nursling we pass to the second year of life, wherein the child begins to crawl about, to receive the infection from the floor and dust laden atmosphere of the lower air stratum; the diet begins to approach that of the adult and pathogenesis depends on causes more external than internal.

Later on still may be observed the influence of the school, the increasing opportunity for the spread of the acute infections, the effect of mental strain, eye strain, etc.; generally speaking, pathogenesis from causes mostly without the body.

In all of these periods of child life, one will from time to time meet with commonplace disease so atypical in its manifestations as to render diagnosis difficult or impossible. It is to some of these vagaries that have come under my own observation, that I wish to briefly call attention.

Diseases involving the thoracic viscera are particularly interesting in this connection, as showing most unusual clinical symptoms and presenting physical signs seemingly at variance with existing conditions. Many unexplained febrile movements attributed to the digestive system for want of more definite knowledge, can, with the aid of the radiograph and tuberculin tests, be definitely placed to the credit of tuberculous, bronchial and mediastinal lymph nodes.

In infants and younger children, tuberculous infiltration of the lungs may exist absolutely without physical signs. This fact was well shown in a recent necropsy at the Children's Hospital, upon a child dead from tuberculous meningitis. The most extensive involvement of both lungs was observed, whereas during life careful examination had failed to reveal disease. On the other hand, a diagnosis of pulmonary tuberculosis is always doubtful when sputum and tuberculin test are negative, notwithstanding positive physical signs.

Pneumonia, both lobar and broncho, present in their onset and course ofttimes, many perplexing problems. In infants and very young children the onset is usually announced by convulsions, more or less severe supplanting the chill observed in older children and adults. The convulsion, just as in those associated with intestinal disturbance, would seem to be dependent directly upon the hyperexia, being promptly controlled by measures tending to reduce fever. A mode of onset in older children, not so commonly observed, is that simulating abdominal disease. This is best illustrated by the brief history of a case recently admitted to Dr. Wellington's service in the Children's Hospital. This patient, a girl of ten years, was brought to the hospital as an emergency case with a tentative diagnosis of intestinal obstruction. She had been taken suddenly ill a few days before with chill, fever, nausea and vomiting. Along with these symptoms there was a history of obstinate constipation. An examination revealed a distended abdomen, tender to the slightest pressure, the chest presented the physical signs of consolidation at both bases, anteriorly and posteriorly. A typical lobar pneumonia followed to be later complicated by purulent effusion.

Again the onset may be strikingly meningeal in type, the "Meningismus" of the French, with

bulging fontanelle and all indications of intra-cranial pressure.

Central pneumonias are a frequent source of trouble. Such cases may be readily confused with the onset of acute osteomyelitis. In central pneumonias an examination high up in one or the other axilla, will often show consolidation when the remainder of the chest has been negative. Also in this connection it may be borne in mind, that uninvolved portions of diseased lungs show signs of compensatory breathing, increased movement, hyper-resonance and harsh breathing. The characters of puerile breathing must, however, be considered and due allowance made.

In the interpretation of physical signs one may be led astray by the transmission of phenomena from the one side to the other or from adjacent viscera. Thus a tympanitic note may be elicited over consolidation, and bronchial breathing heard over normal lung, the latter most often happening in cases where infiltration lies close to the spine. Vocal fremitus is of no value in infants and young children, not so, however, with the auscultated voice, which is of service at all ages.

Cases of lobar pneumonia often run their entire course without cough and never present rusty sputum. The patella reflex is often lost at the height of the febrile action. The lower left lobe is the seat of disease in a large majority of instances, though apical involvement is not infrequent and is indeed the rule in pneumonias complicating influenza and typhoid fever.

The course and duration of this affection in children frequently departs from the rule, though the prognosis as to ultimate outcome is good. Temperature often declines by lysis in attacks differing in no respect from others where crisis is observed. An infant in Dr. Acker's service at the Children's Hospital at the present time has now been ill nineteen days with continued fever and typical evidence of pneumonia at the left base.

The advent of purulent pleuritic effusion in any case of pneumonia should be recognized at the earliest possible moment as successful treatment largely depends upon early interference. The usual picture of this condition represents a stage in its development to which it should never be permitted to attain.

The most valuable physical sign is flatness, all others being from time to time atypical. Both voice and breath sounds may be transmitted through effusion, but the flatness is constant, rising rapidly, anteriorly and posteriorly, except in localized disease. The obliteration of the intercostal spaces and local edema should never be awaited. Even the exploratory puncture is at times misleading, from the use of too small needle or the character of the exudate.

Pulmonary abscess following or complicating pneumonia, usually broncho, is not common, but may be confused with purulent effusion. In the one case that has come under my own observation the picture, including physical signs, was that of empyema. Before admission to the hospital an exploratory puncture had been made with positive results, as was also one made immediately before operation. On exposing the pleural cavity only extreme congestion was observed, but forceps passed into the lung substance and opened brought quantities of thick pus. Except for purposes of prognosis the differentiation in such instances is not of importance. Abscess, however, represents an exceedingly grave condition, with high mortality.

The gastro-intestinal tract is held responsible, and justly so, for a large train of symptoms observed in childhood. Perhaps when we arrive at more definite knowledge concerning the products of normal and abnormal digestive processes, we may have less cause to marvel at the varied manifestations of such disorders.

A very large proportion of all instances of convulsions in the young, may be attributed to hyperexia following gastro-intestinal disorder. Tetany is an interesting condition usually associated with intestinal auto-intoxication.

Skin eruptions, varied in character and distribution, are often observed to yield to treatment directed to the digestive functions. Ordinarily they are characteristic, exudate in the first year or two, and urticarial in older children, but may assume appearances anything but typical. Frequently it is impossible to differentiate such eruptions from the exanthemata, especially scarlet fever and measles. Desquamation follows in some cases and is not necessarily a criterion.

Transient edema is sometimes seen, involving one or more extremities and dependent upon vaso-motor disturbance due to intoxication of

intestinal origin. The following illustrates such a case. An artificially fed infant six months of age, of normal weight and development, aroused its mother in the night by loud crying indicative of pain. On examination the hands were found to be cold, white and greatly swollen (pitting only on long continued pressure), otherwise the child seemed normal. When seen the next morning this patient presented only slightly swollen hands, a maculo-papular rash over the abdomen and chest, and gave a history of having had several undigested stools on the previous day. Edemas of this sort are not to be confused with those observed in anemic infants after exclusive broth feeding for a longer or shorter period.

Acute inflammations of the middle ear not infrequently prove difficult of recognition. The onset of such disease is usually very abrupt, oftentimes with convulsions, high fever and vomiting. The patient cries out in great pain and resents the slightest disturbance, often the cry is hydrocephaloid in character. We have in most instances nothing to direct attention to the real seat of disease, even children of six and seven years giving no information of value. An examination of the tympanum should always be made in such cases by the otologist.

Diphtheria sometimes presents unusual local manifestations. It has come to be a fairly well established fact that diphtheritic infection of the mucous membranes, occurs, at times, without any local manifestations other than redness, catarrhal diphtheria. The diagnosis of this condition is tentative in the presence of feeble heart action and albuminuria and is confirmed in the usual way. Such infection represents true disease and is distinct from the so-called "Bacillus Carrier." In convalescence from diphtheria where the patient is too soon allowed to sit up, the occurrence of vomiting is suggestive of myocardial degeneration.

In closing, I only wish to draw attention to certain indefinite febrile attacks occurring in children. It is especially important to exclude tuberculosis in cases where no adequate cause is demonstrable. Undoubtedly many such cases go past the stage when treatment would mean the most. We should by no means neglect to resort to the measures recently placed at our disposal for purposes of diagnosis.

The Rockingham.

THE VALUE OF SANATORIUM TREATMENT IN PULMONARY TUBERCULOSIS.*

By W. D. TEWKSBURY, M. D., Catawba, Va.
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In choosing as the subject of this paper, "The Value of Sanatorium Treatment in Pulmonary Tuberculosis," I have in mind particularly the work being done at Catawba State Sanatorium. I feel that every physician in the State should know in a general way the character of the institution and the manner in which it is conducted, as you will all have cases of tuberculosis in which the question as to their future will be left entirely to the physician.

The Catawba Sanatorium is located at the site of the old Roanoke Red Sulphur Springs, ten miles from Salem, at an altitude of twenty-one hundred feet above sea level. The nearest railroad station is three miles distant over the Catawba Mountain, rendering the sanatorium rather inaccessible, but this very inaccessibility is an immense advantage, as it removes the temptation for patients to take frequent trips to nearby towns, which trips so often result in excesses of various kinds. A patient, as a rule, enters the sanatorium and stays until a cure is effected, or until he has obtained the maximum benefit.

The advantages of sanatorium treatment may be summed up in three broad statements: First, it gives the patient the best chance to effect a cure; second, each patient entering a sanatorium is a source of infection removed from his local community; third, each patient leaving a sanatorium has been so educated in the principles of sanitation that he not only ceases to be a menace to the community; but, in fact, becomes an educational factor of no mean value.

Upon entering a sanatorium patients sleep and live almost entirely in the open air. The sleeping quarters consist of open pavilions, each having a heated lounging room and a heated wash room in which to dress and bathe. Patients average twenty hours of the twenty-four either resting or walking in the open air winter and summer. Each patient is required to take one-half hour's rest before meals and one hour's rest after meals on a reclining chair, and this is required to be absolute mental and physical rest. Between rest hours, exercise

*Read by title before the forty-first annual meeting of the Medical Society of Virginia, at Norfolk, October 25-28, 1910.

is indulged in according to the physical condition. As a rule, a patient whose temperature stays below 100° is allowed some exercise in the form of walking, starting with a half mile a day and gradually increasing until five miles or more a day is taken. If exercise materially increases the temperature or pulse, causes marked fatigue, or any untoward symptoms, the length of the walk is decreased and in some instances absolute rest is required. Any case in which the temperature runs persistently above 100.5°, should be kept absolutely in bed in the open air. Absolute rest is the treatment "par excellence" for hyperexia, and if the temperature persists after rest has been enforced for some time in a case with well marked lung involvement, no treatment is likely to prove of avail. The Catawba Sanatorium is not intended for bed patients, as we have not the proper facilities for their treatment and we do not attempt to keep cases in which excessive temperature persists.

As regards diet, I find that 90 per cent. of my cases gain consistently in weight on three meals a day with a glass of milk between meals. In about 10 per cent. of the cases, I find the addition of a few raw eggs or other nourishment is necessary, but I believe milk alone to be the better food for the vast majority of patients, having less tendency to derange the digestion and, therefore, being better borne over a long course of treatment. The majority of sanatoria are now depending on milk as the staple nourishment, adding raw eggs only in selected cases, and a number of them are in fact using no nourishment.

Another advantage in addition to the carefully regulated mode of life and diet, is found in the fact that complications, particularly hemorrhage, can be met much more promptly in a sanatorium where a physician is always within call. An extension of the tubercular process following hemorrhage occurs rather frequently and this can often be averted by prompt treatment. In a sanatorium, the mental attitude of the patient is more apt to be one of contentment as he is associated with persons suffering with the same disease as himself and does not feel that he is feared and shunned by all with whom he comes in contact. Another important factor in cases of tuberculosis and one which has not been considered as seriously as it should be, due either to false modesty on the part of the patient or false delicacy on the part of the physician—is the sexual element. By sending patients to a sanatorium they are removed from all sexual temptations, a result which it seems impossible to obtain under home treatment. This constitutes, in my opinion, a weighty argument in favor of the sanatorium treatment.

In addition to the routine treatment, tuberculin for its therapeutic effect can be administered more carefully and satisfactorily in a sanatorium. The value of tuberculin treatment in cases of pulmonary tuberculosis is at present a mooted question, eminent authorities speaking both for and against its use. While my experience has been rather limited, covering probably fifty cases, the results obtained seem to me to warrant its use in selected cases. Three methods for using tuberculin have been employed in the past: First, the reaction method, using sufficiently large doses to produce rise of temperature, increased expectoration, etc., waiting for the reaction to subside and repeating the dose; second, the opsonic method advocated by Wright, of England, the dose being regulated by the opsonic index; third, the tolerance method beginning with a small dose and gradually increasing, reactions being avoided, if possible. The tolerance method is usually employed in this country and has probably yielded the best results. All my cases have been treated according to this method and the results seem to show that tuberculin is indicated particularly in two classes of cases—namely, early cases in which the lesion does not clear up satisfactorily under routine out-door treatment, and advanced chronic cases in which the tubercular process seems to be stationary. Patients in whom the lesion is sufficiently active to produce an evening temperature of 100° or more, do not seem to be benefited by tuberculin treatment and, unless administered carefully in these cases the trouble may be aggravated by its use. I recollect several cases who had taken routine treatment for a considerable length of time and had been stationary for a number of months, who upon the addition of tuberculin treatment gained rapidly in strength and weight with an appreciable improvement in the physical findings and a return of temperature and pulse to normal, allowing them to be finally discharged as apparently cured or arrested.

Under sanatorium treatment all these factors

combine to give results in cases not too far advanced, both remarkable and gratifying. The cough, temperature and signs of pulmonary activity, rapidly diminish, and the weight and strength increase to such an extent that it is frequently hard to believe that the patient is suffering with pulmonary tuberculosis.

Let us now consider for a moment the patient upon his return home; he is usually cured or improved and his arguments are likely to be given respectful attention by the laity; he is an advocate of open-air life, and will usually persuade his family and friends to open the windows and sleep in the open air. He is careful to observe the rules of sanitation, as I have heard several patients express it, "We feel that we are committing a crime if we expectorate on the ground." They take pride in dispensing their knowledge concerning the disease, its etiology, mode of transmission, method of prevention, etc. They warn friends with a cough to consult a physician, thus enabling the profession to diagnose cases while yet in the curable stage. In fact, the value of a sanatorium case to his home community is so clearly of immense importance that it is needless for me to dwell upon it further.

I wish to impress on the practitioner that it is as essential to treat a case of tuberculosis promptly and carefully as a case of typhoid fever or pneumonia; that every week a patient is allowed to continue his usual mode of living his chance of recovery is rapidly diminishing; that it is absolutely essential for him to immediately discontinue for a time his daily duties, and finally that while home treatment is possible, the sanatorium offers the many advantages which I have mentioned.

In closing, I will read a summary of the results which were obtained during the first year at Catawba Sanatorium.

The classification of discharges is made according to the scheme of the National Association for the study and prevention of tuberculosis, whose rules provide that a patient to be apparently cured must have little or no cough and expectoration; no bacilli in sputum and no constitutional symptoms for a period of three months, the physical signs being those of a healed lesion. A patient to be arrested, must have no constitutional symptoms, with the physical signs stationary or retrogressing for a period of three months; cough, expectoration and bacilli may or may not be present.

Omitting two cases not tubercular and two cases staying less than one week, the number of patients treated from July 30, 1909, to July 30, 1910, 135.

Apparently cured	7	5.3%
Disease arrested	24	17.8%
Improved	89	65.9%
Unimproved	14	11.1%
Died	1	.9%
	135	100%

Average length of treatment was eleven weeks.

Longest stay, forty-four weeks; shortest stay, one week.

CLASSIFICATION ACCORDING TO STAGE OF DISEASE.

Incipient	27	20. %
Moderately advanced	62	45.9%
Far advanced	46	34.1%
	135	100%

Number patients gaining weight	126	93.3%
Average weight gained	9 lbs.	
Number patients losing weight	9	6.7%
Average weight lost	2.4 lbs.	

Patients treated for more than three months, 46.

Apparently cured	7	15.2%
Arrested	23	50. %
Improved	14	30.5%
Unimproved	2	4.3%
	46	100%

Of the total number of patients treated, 80 per cent. have been in the advanced stage, and only 20 per cent. in the incipient stage.

Of all the patients treated since the opening of the sanatorium, 88 per cent. have been benefited, that is either cured, arrested or improved.

I wish to call attention to the marked benefit received by patients taking the treatment for more than three months. Of all the patients taking treatment for over three months, 65.2 per cent. have been either cured or arrested, and 95.1 per cent. have been either cured, arrested or improved.

DIFFERENTIAL DIAGNOSIS OF ALCOHOLIC COMA FROM OTHER FORMS OF COMA, WITH ESPECIAL REFERENCE TO THE CARE OF UNKNOWN PERSONS FOUND BY THE POLICE ON THE STREETS IN A COMATOSE OR SEMI-COMATOSE CONDITION.*

By LEWIS D. MASON, M. D., Brooklyn, N. Y.

An article entitled "Practical Differentiation of Inebriety from Coma," written by Dr. John Morris, of Baltimore, Md., was published in *The Quarterly Journal of Inebriety*, June, 1879. The subject under consideration is introduced with this statement:

"The frequent occurrence of blunders in mistaking brain diseases for drunkenness, and the serious reproach they bring on medical men, render it necessary that more earnest attention should be paid to the subject than heretofore, and that a higher knowledge should be obtained of the character of the dangers incident to these accidents. Unfortunately, drunkenness has not, save in a few instances, been studied as a disease, and consequently the manifestations pertaining to it are very little understood. This ignorance is particularly unfortunate when it is necessary to distinguish between it and brain troubles."

In February, 1894, a committee was appointed by the Medical Society of the County of Kings, New York, to report "what means have been provided in the City of Brooklyn for the immediate care of persons found unconscious in the streets." That committee consisted of Dr. Raymond, Health Officer of the City of Brooklyn, as chairman; the late Dr. J. C. Shaw, neurologist, and myself as secretary. It is my intention to give you the result of the work of this committee, as well as the consensus of opinion of various authorities upon this subject, and in which, although some sixteen years have passed, there is no less interest and importance now, than there was then.

The difficulty of diagnosis of alcoholic coma from other forms of coma is very great, often impossible. Even simple alcoholic coma without complications cannot be differentiated always from cases in which certain cerebral conditions, the result of disease or injury, simulate alcoholic coma. Even expert diagnosticians have failed and will fail in making an *immediate* diagnosis.

To whom usually is committed the first opportunity to make such a diagnosis and render first aid to the injured under these conditions? The police, the public and the recent or undergraduate.

It will be noticed that the difficulty of, and the failure to, make a proper diagnosis in these cases is first due to the great similarity under certain conditions of alcoholic coma and other forms of coma of cerebral or other origin; and, secondly, to the fact that this difficulty in making the diagnosis is due to the fact that the person who attempts to make it is *incompetent* to do so, or is superficial, careless, or indifferent in arriving at his conclusions, or by force of necessity due to the urgency of the case, is forced, as it were, to decide hastily, and so literally "jump at" an erroneous conclusion.

Take a hypothetical case: A person is found unconscious on the street by the police; they are in doubt and call an ambulance. The ambulance surgeon detects the odor of alcohol and other symptoms similar to alcoholic intoxication—stupor, mental confusion, partial consciousness; on being aroused, in a maudlin way the person may give his name and address, then lapse into unconsciousness. There is no apparent evidence of any cerebral disease or injury, or, indeed, of any other condition that could produce just these symptoms. Here is a case that certainly simulates alcoholic intoxication; besides, there is the corroborative evidence—the alcoholic odor to the breath. The decision must be promptly made. The hospital has a standing rule that "drunks" must not be taken in, or, in the official language, they are "refused." The ambulance surgeon must not break this rule; therefore, on what he thinks is good evidence, he "refuses to remove the case," and in his desire naturally not to infringe the hospital rule, he gives the benefit of the doubt to the hospital, and the patient is removed to the station house. He is there received and registered as "drunk," if at all demonstrative, "disorderly." He is placed in a cell. Some hours will elapse before his case is disposed of, and in the meanwhile he will sleep off his "drunk."

In due time the cell door is unlocked, but the prisoner will never appear before an earthly

*Read by title before the forty-first annual meeting of the Medical Society of Virginia, held at Norfolk, Va., October 25-28, 1910

tribunal. The "dead drunk" has slept his last sleep. Next in order, a "coroner's case." An inquest is held. The testimony is taken before the usual jury and the cause assigned is "alcoholism and exposure," but, unfortunately for the authorities, and fortunately for the deceased, his friends are not satisfied with the finding of the coroner's jury and insist on an autopsy, and the actual cause of death is found to be fracture of the skull or some other fatal cerebral lesion.

A similar case occurred not long since in a prominent western city, and formed the basis of an editorial in one of our leading medical journals. Calling attention to the evils that attend the present method of dealing with the class of cases under consideration here, it said: "The intelligent coroner's jury heard the testimony of the intelligent officers and rendered the intelligent verdict that death was the result of acute alcoholism." A second inquest held resulted in a verdict in accordance with facts—a fracture of the skull. The testimony further brought out the fact that the deceased was not a drinking man.

We should be impressed that profound alcoholic intoxication in itself is a serious matter, although no complication may exist, because of improper environment, neglect of treatment, or malpractice, a fatal issue may result.

Alcoholic coma has no positive or pathognomonic symptom, or symptoms, to differentiate it from other forms of coma. It is not easy to diagnose a case of simple so-called "drunk" or eliminate with certainty, certain serious, often fatal, complications, masked or not by alcoholic conditions. What, then, are the symptoms of a simple, uncomplicated case of alcoholic coma that we may consider?

Alcoholic odor of the breath is of negative value—merely suggestive and always safely ignored.

Pulse, sub-normal, at or below 60; weak; fluctuates rapidly on shaking patient—a condition of vaso-motor paralysis.

Pupil.—MacEwen, of Glasgow, an experienced observer in this class of cases, supposed alternate dilatation and contraction of the pupil under disturbance of special value, but Reynolds observed that this symptom may occur in acute softening of the brain. The pupillary response will be of value in ascertaining condition of reflex. In some forms of cerebral hemorrhage the pupil has no fixed regularity, and, therefore, has no symptomatic importance.

Temperature is of value and may be regarded in one sense as especially so. In cerebral conditions the temperature is at or above normal; in alcoholic coma 2½ or 3 degrees below normal. In cerebral conditions, complicated with alcoholism, this positive distinction might be modified. In chloroform narcosis we should expect a sub-normal temperature.

Reflex.—We should look for dullness or feebleness, as to sensation, touching eyeball with finger or pupillary response to light or agitation, reflex of muscles of leg or back to prick of pin or heat or cold; absence or failure of response indicates a profound and grave condition, but of no special value in differential diagnosis.

Cutaneous Anesthesia.—This is the normal condition of the chronic alcoholic who is otherwise conscious and not under direct alcoholic influence. It is a pathologic condition. Acute alcoholic narcosis in a normal person, not necessarily under profound alcoholic influence, is accompanied by general anesthesia, and operations even of the major class may be performed at such periods. This is the experience of the older and modern surgeons, and a not uncommon experience in our hospitals. This condition may not necessarily be peculiar to chronic or acute poisoning from alcohol, but is certainly incidental to it.

Urine is secreted freely—the bowels are free. This is due to relaxation of the sphincters. There is vomiting usually on reaction. Albumen may be found in urine where alcohol is taken to excess. Alcohol may be detected in the urine by the color test of Anstie; by adding one drop of alcoholized urine to fifteen drops of a chromic acid solution, a reaction producing a green color will take place, due to the reduction of the chromic acid to the green oxide of base chromium; by marking the difference of color a scale can be produced showing extent of reduction and amount of spirits present. Presence of alcohol in urine does not necessarily exclude possible complications. Evidence of kidney disease should be always looked for. If uræmic conditions are suspected, passing a catheter, finding an empty bladder and other indications

of suppression of urine for a definite length of time, would strongly point to such a conclusion as a direct or complicating cause of coma.

Certain comas may simulate alcoholic coma and the reverse. We must know that in all such cases of coma we are called upon to make an *immediate* diagnosis; in a case *without a history,* in an *unknown* and *unconscious* person, and that the evidence is entirely *objective* and not even reasonably circumstantial.

In an *epileptic attack* the coma period is short, and the bitten tongue will indicate a convulsion, but epileptic attacks are not uncommon in chronic alcoholics.

Heat Stroke.—The season of the year, and an exceedingly high temperature, will indicate the cause of coma.

Drug Narcosis.—Chloroform narcosis would closely resemble alcohol narcosis, but is unusual under the conditions mentioned, and the odor of the breath would be decidedly noticeable. *Opium coma,* if laudanum has been taken, the odor on breath is of value. The pin-head pupil may also occur in apoplexy of pons varolii and in alcoholic coma we may also have a contracted pupil though not to *same degree* as in opium coma.

Acute bromism is rather a state of semi-consciousness with loss of memory, cutaneous insensibility, loss of co-ordination, partial at least, with staggering gait, profound mental depression with suicidal tendencies.

Vertigo, cardiac syncope, due to weak heart, possibly complicated with, or largely due to, an attack of indigestion is accompanied by prostration and recurrent faintness, temporary blindness, staggering and nausea. In these cases there is a passing condition and intelligence recurs *promptly* on recovery. So also in recovery from cerebral embolism, with loss of consciousness and hemiplegic symptoms and forms of thrombosis, in which the normal conditions are restored reasonably early.

A condition of aphasia, or of partial or complete amnesia, accompanied with confusion of thought and mental aberration, especially if there is the odor of alcohol on the breath, are apt to be mistaken for drunkenness. It must be remembered that alcohol is often given *after* the person is found in these conditions, and may thus complicate the diagnosis. It must be noted also that alcohol as a *complication* may be possible in any form of disease or injury producing a comatose condition, and add to, and intensify, the condition of coma, and increase the difficulty of a correct diagnosis. It is well always to ascertain if alcohol has been given after the person has been found in such condition. Alcohol has been administered to persons suffering from alcoholic coma—that is, the partial form or semi-conscious condition.

It will be perceived that alcoholic coma *may co-exist* with other forms of coma; that alcohol so taken or given *may prolong* other comas due to other causes; that other forms of coma, especially those due to certain cerebral conditions *may simulate* alcoholic coma, no alcohol being taken; that there is *no special symptom* pathognomonic or characteristic that will differentiate alcoholic coma from other forms of coma.

That, therefore, it is not safe for these reasons to attempt an *immediate* diagnosis in cases of supposed alcoholic coma until a reasonable length of time has elapsed to allow an alcoholic coma to pass away, and thus, if possible, eliminate it as a possible or complicated cause of the coma. Of course, we do not include cases in which injuries of the head or cerebral conditions are reasonably clear, but all cases involving an element of doubt.

As has been pointed out, certain forms of cerebral disease, and ingravescent apoplexy, serious cerebral effusion, or the wet brain of chronic alcoholics, may present symptoms resembling alcoholic coma and be mistaken for it, especially if these conditions accompany or follow an alcoholic debauch, although, as we have seen, such need not necessarily be the case; as stated *cerebral hemorrhage of the ingravescent form* is more frequently mistaken for drunkenness than any other condition. The symptoms are similar in several stages of the two conditions, a stage of violence and uproar, then complete coma in both. These are the cases that are arrested as "drunk and disorderly."

Indications for Treatment.—Unless definite and obvious, as in fracture of the skull with depression and hemorrhage, or in equally clearly defined cases, we must necessarily delay the diagnosis and the case must be treated ten-

tatively. Simple profound alcoholic coma, even when not complicated, is in itself a serious matter, and not infrequently results fatally if improperly treated, and whether we have to deal with alcoholic coma as a direct, associated or complicating cause of the existing coma, the main indication for treatment will be—

Elimination.—We are opposed to the "sleep off a drunk" method, usually adopted in such cases. We regard such treatment as unscientific and dangerous, and not infrequently fatal, not adopted in treating other forms of poisoning, and in degree a form of malpractice. We believe measures should be used similar to those resorted to in profound and serious ether or chloroform narcosis in which the conditions calling for interference, are not at all dissimilar.

Nature endeavors to follow the line of elimination through the activity of the kidneys, and bowels, and emesis during the reactionary stage to throw off the poison.

Heat is especially indicated in overcoming the subnormal temperature, relieving the weak and depressed circulation, and by promoting hydrosis, establishes and favors elimination by the skin. The hot air bath, as used in cases of uræmic coma, would be of additional value in the eliminative process.

Cold.—A low temperature in the case of "simple dead drunk" where the person is in a state of profound coma, and has been placed in a cold cell to "sleep off his drunk" is, as a rule, fatal. Richardson, of London, showed that rabbits equally alcoholized or placed in a state of alcoholic coma and put in a chamber, the air of which was reduced in temperature, to 10 degrees below freezing point died. The control placed in a warm chamber slept more deeply and longer than natural, but lived. After this experiment of Richardson's the London metropolitan cells were warmed in cool weather.

Oxygen.—It is not necessary to prove that in cases of chronic alcoholism, and under the conditions we are considering, that the person is suffering from a state of partial asphyxiation, as determined by the physiological action of alcohol on the red corpuscles. It would seem, therefore, that oxygen by inhalation was indicated—certainly abundance of *fresh, warm air*, and at least not the close confines of the average *ill-ventilated cell*. The position of the body is important, so as not to restrict free thoracic movement, and the act of expiration or inspiration, and as in extreme cases where certain poisons affect the respiratory centers, and indirectly the act of respiration, artificial respiration should be practiced.

Is there any other method of treatment than that suggested, by which we can further hasten elimination and shorten the stage of alcoholic coma, and aid the differential diagnosis? Let us enquire whether *strychnine in a measure* at least can fulfill these indications. Where the leading symptoms point to a reasonable supposition that we are dealing with a case with which alcohol has something to do, either directly or indirectly, with the comatose condition, the therapeutic and physiological action of the drug would indicate its value. We recognize a similarity in the symptoms of ether or chloroform, and alcoholic poisoning, also that strychnine is antidotal to chloroform, and is the one remedy on which we rely in cases of profound, and serious narcosis from ether or chloroform. We also have experienced the fact, that if we precede the anesthetic for any reason by a dose of strychnine, the preliminary stage of anesthesia is apt to be prolonged, and it is difficult to get the patient under the anesthetic.

We believe in any case of alcoholic coma, whether complete or partial, simple or complicated, and where the *symptoms do not especially contra-indicate its use*, strychnine is indicated from a therapeutic, and physiological point of view for the purpose stated. It fulfills all the leading indications presented in a case of complete alcoholic coma, it is the most valuable of the respiratory stimulants, an excellent cardiac tonic, overcomes vaso-motor paralysis, acts upon the skin, and assists in elimination. My experience is confined to one case of complete alcoholic coma, and several in the partial stage; and, although limited, and along the line of suggestion, will, I believe, be confirmed on the ground of reasonable expectancy, and by further clinical observation, and prove of advantage in shortening the stage of alcoholic coma, by more speedily assisting in effecting elimination, and aiding in the differential diagnosis, in a measure at least.

It may be stated that the average chronic alco-

holic can endure a larger dose of strychnine than a person under *normal* conditions. The same is true of persons profoundly under the influence of alcohol. In both cases there is a *toleration* of the drug. The usual dose by mouth that I have given in such cases is 1-30 grain or 1-15 of a grain, not exceeding that as the total dose, within a safe period. The most certain method is to use the drug hypodermatically. As has been stated, in cases of chronic alcoholism or the condition under consideration, it must be borne in mind that *toleration* of the drug has been established in a measure, and that a larger dose can be given safely than under normal conditions.

The act of swallowing is in itself reflex, and as soon as reaction sets in and it is safe to do so, strong *hot* tea may be administered. Other cerebral stimulants, such as caffeine, might be administered hypodermatically before stage of consciousness has arrived.

These measures, as stated, can be instituted in cases where alcoholic poisoning is suspected, in which some of the characteristic symptoms are present, and there is no *serious contra-indication.* These measures should in a reasonable time greatly modify the condition of alcoholic coma, whether that be simple or associated with other complications, in the one case shortening and the other assisting in clearing up the diagnosis. If after a reasonable use of these means for a definite period, at least within an hour, we should note no improvement, as seen in the returning consciousness, and pulse, and temperature, and reflex response, approaching the normal, the supposition is strong that there exists other cause or causes for the coma, which are not alcoholic.

The alcoholic possibility being removed, the method of diagnosis by exclusion should still be carried on, the treatment be tentative, and the time limit extended, until conditions are established under which a complete and safe diagnosis can be made.

It will be perceived that in presenting this phase of the subject, I desire to emphasize the necessity of treating cases of alcoholic coma, according to the rules of the theory and practice of medicine, and claim for its treatment all the therapeutic advantages that may be used under other toxic conditions, and also assert that any other position that we may assume is neither humane nor professional, and not unfrequently followed by serious, if not fatal result and constitutes *in facto,* if not *in jure,* a form of malpractice.

Civic treatment of such cases has been largely regulated by the practical indifference of the medical profession to the existing condition, and the failure to recognize the serious nature of these conditions, to dispel the popular ignorance, and to memorialize the authorities, to provide more intelligent care in dealing with such cases. A standing rule should be insisted upon, that is, *that all cases of coma, whether alcoholic or not under the conditions considered, should be removed at once to the nearest hospital, and placed promptly under intelligent care and observation.*

The objection of the average general hospital would be that they have no provision for this class, no special wards, no place for "drunks." That the reception of this class of cases would involve extra expense and introduce an element of disturbance, detrimental to the general interests of the hospital.

The remedy that naturally suggests itself is that there should be established in every large town or city special and central emergency hospitals, or wards in a general hospital centrally located suitable for the reception of such cases at all times.

This is the method adopted in the city of Paris, in connection with the Bureau of Distribution which is located in the Hospital St. Anne. Here there are fifty beds for the temporary treatment of such emergency cases. There until the nature of the case is determined they remain and until they can be taken to their homes or assigned to special institutions. The danger and fatality attending the irregular and indefinite methods in use in most civic centers is thus avoided, for the reason that the person, without loss of time, is taken at once to a special hospital, placed under the care of a competent resident medical staff, who are on duty night and day. Under these circumstances an early diagnosis, if possible, is made, no serious mistakes occur, there is prompt and efficient treatment, the person is placed under the best possible conditions, and as far as human agencies can prevent, fatal issues are thus, if possible, avoided, and recovery reasonably assured.

In New York City the psychopathic wards of Bellevue Hospital receive and treat several thousand cases annually, in which this class is included, but as far as I can ascertain, the method of the disposition of the class of alcoholic cases, especially the pauper class, upon discharge from the hospital, is not as thorough as it should be, and the period allowed for convalescence is too short. This condition calls for a provision for the permanent or extended care necessary for a certain class of cases, which is impossible, owing to the overcrowded state of the wards and the continuous demands made upon them at present. A recent law passed by the State Legislature, we trust soon to be operative, will meet this need with regard to this class.

But by some chance or unfortunate circumstance a person in this condition may be taken to the station-house. Although not as common as formerly, yet the absence of proper provision for such cases renders it often compulsory to do so, and certainly under such conditions the police authorities cannot be blamed for the mistakes of their subordinates. Let us hope where such possibilities exist, the cause that occasions it, which is evidently fundamental, will be removed.

The object of this paper has not only been to remove a standing disgrace to civilization, a shock to our humanity, but also an opprobrium to medical science in the exhibit of a most reprehensible form of mal-practice, under the most distressing conditions, in that coma resulting from fracture of skull or certain cerebral conditions, with which alcohol had nothing to do, may be classified as a "simple drunk," or in the early stage of certain other cerebral conditions, where there is partial consciousness accompanied by boisterous conduct, with swearing and resistance, recorded as "drunk and disorderly."

Another object I had in view was, not so much to prepare an elaborate paper on this subject, or to deal with it solely from a scientific point of view, but to bring the subject before the profession, and through them to the civic authorities, that they might deal with the considerations involved, and the pressing urgencies of the case, from an eminently practical standpoint. The latter part of this paper embodies the recommendation of the special committee to which we have already referred, more especially as to the "civic" treatment of such cases, and need not, therefore, be considered separately at length.

PERSONAL OBSERVATIONS OF A FEW CASES OF SYPHILIS TREATED BY THE SO-CALLED WONDERFUL 606.*

By M. C. SYCLE, M. D., Richmond, Va.

To begin with, I hesitate in using 606. Let us wait and watch the results; but up to the present time my observations would seem to indicate that 606 in treating syphilis in the most malignant cases, acts as a miracle, and should it prove to be successful, we will owe much to the great Dr. Ehrlich in saving the lives of many who have been so unfortunate as to contract the disease.

In my estimation there are more deaths from this disease than from any other cause, and if we will follow the previous histories of the many deaths from locomotor ataxia and paralysis, we will find from the history of same that syphilis was the direct cause. At this early date, I would not attempt to treat a patient with the 606 injection that would come to me at the first stage, but I do believe in the tertiary stage it is a drug to be tried.

Here I can cite a case in which the results proved to be wonderful. The patient was referred to me by Dr. M. D. Hoge, Jr., more than four years ago, with all tertiary symptoms, which did not respond to my usual form of treatment with injections of salicylate of mercury. After reading about this great preparation—606 (or paradiamidodioxy arsenobenzole dihydrochlorid), I determined to try Ehrlich's discovery, especially as better results are claimed in the tertiary stage because of the presence in the body of the large quantities of the antibodies, which have had time to develop.

Is it possible that one injection will destroy all parasites? Does it not seem a great risk to use such a powerful drug for fear of destroying other body cells? Ehrlich does not claim it harmless; in fact, just the opposite, and this was told to my patient under the care of Drs. Chetwood and Nordeman, of New York. They promised him nothing, but advised that he should take the chance for the reason that all of the cases that Chetwood had injected had shown

*Read before the Richmond Academy of Medicine and Surgery, December 13, 1910.

marked improvement; though, as to how long such improvement would last is a question that cannot at the present time be answered, but reports from all over the country are favorable, in spite of some relapses. It is fair to say to any patient, like the case I placed in Dr. Chetwood's care, that the outlook is good, even though the remedy does nothing more than supplement the older method of treatment by producing a diminution of the virulence.

Here I might mention a few symptoms and results after one injection. The patient had suffered a severe periostitis, was unable to sleep for the past few months unless given bromides. There was a deep ulcer on the left leg, and he had the usual throat symptoms, swelling of the ankle joints, a destructive gummy ulceration, scaly patches, a gummy ulcer in the posterior wall of the pharynx, the characteristic scars of the pustular syphilide, as also the syphylitic cachexia, loss of appetite and expression of a man about to commit suicide.

The patient was injected on November 22d. Before the injection, a Wasserman test was made and found positive. Three hours after the injection the previous pains had left, and, though the patient was most uncomfortable, having a rapid pulse, temperature of 101, respiration depressed—in fact, his condition was such that we were unable to discuss it with him—yet, at the end of the second week, there was a marked improvement; the scars about his face had diminished in size, the ankle joints had become normal, all pain had left except at the seat of the injection, the despondent expression had entirely disappeared and the deep ulcer had become clean and granulating.

Now gentlemen, does this seem possible? However, it is true, all true, and it does seem, as some authorities have written, "Like a Dream"; nevertheless, it proved to be wonderful in its action in this one case. A Wasserman test was made a second time and proved to be negative.

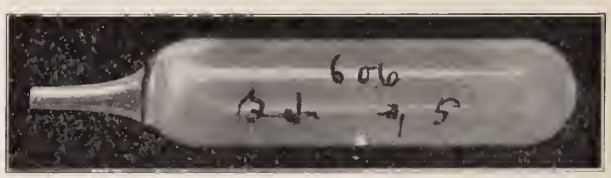
But with all this, I would not be inclined to give up my usual form of treatment until after following the cases that had been injected for a number of years, and if there was no return of the disease, it would certainly then prove to be the great and wonderful 606.

I saw while at Bellevue seven cases injected, and seven cases that had previously been injected with marked improvement. The theory upon which this agent produces the results claimed for it has been developed by Ehrlich in the exposition of his theory, "*Therapia Sterilans Magna.*" The results depend upon the fact that a single chemical agent can be introduced into the system, that will destroy the parasites of a certain disease, for which parasite the agent has a special affinity, without causing a destructive influence upon the organism of the host. This theory has been demonstrated by animal experimentation and clinical experience.

The exact dose of this remedy is not yet known, but my patient was injected with one gram. It can be given either by the intravenous route or by deep intra-muscular injections. Personally, I should prefer the deep injections into the buttocks. I say this for the reason that most of the cases I saw injected were done that way without any bad results.

The substance can be administered as a neutral or alkali salt. It is claimed if given as an acid solution it would be very painful, and if given as a neutral solution there is absolutely no pain, but with this I cannot agree as I saw it given in both solutions and both were very painful, especially so, and the patient could in no way be made comfortable, except under the influence of bromide or morphia. In this particular case, the pain lasted about one week; and beginning at the seat of injection, it radiated down both legs, causing a sensation of numbness. There was also intense swelling, lasting about four days. In the neutral suspension the absorption is slower, which I think is an advantage.

To my mind, it is dangerous for a physician to inject the 606, unless thoroughly familiar as to how to mix the remedy properly, and one thing certain is that you cannot give it at your office. At the present time we are compelled to



Photograph of tube (two-thirds actual size) of Dr. Ehrlich's specific "606." Point of tube was broken off to remove contents.

place our patient in a hospital, to look for any complications that may arise and to relieve the pain after injection, which I consider to be very

severe. The only contraindication that I could find was an affection of the optic nerve or any severe cardiac lesion.

The preparation comes as a flocculent powder, yellow in color, and put up in small tubes.

As to the technique of mixture: It is first mixed in a small quantity of distilled water, 4 or 5 cc., to which is added a few drops of a 15 per cent. solution of sodium hydroxide. This is thoroughly mixed in a glass mortar until all of the granules have disappeared and a good solution has been obtained. Then enough distilled water is added to make the entire bulk 18 to 20 cc., including a further addition of about 1 cc. of the sodium hydroxide which is added to the mixture, drop by drop, until a perfect suspension is obtained. This mixture is

Photograph of syringe (two-thirds size) used.

not a permanent one, and should be used as soon as prepared. The injection is made with a large 19-gauge needle, the suspension divided into two sections and injected in both buttocks.

SHALL THE PHYSICIAN BE EDUCATED?

By J. G. R. BULLOCH, M. D., Washington, D. C.

Several articles have appeared on the subject of education of physicians. No one can pretend to say that if one is classically educated he receives no benefit therefrom; but do not a good many college graduates become mere bookworms, pedantic and conceited? To be able to obtain a college education is, of course, a great advantage, but should we demand that no one but he should be allowed to graduate and practice medicine?

Is not the fact that one is a graduate of a high school or its equivalent, sufficient to enable him to meet all the demands, and, if there is anything in him can he not, by diligent study, rise to any position in life, and grace it, too? Does not a college education unfit many for the ordinary duties of life, and will this graduate go on the highways and in the byways and through mountain fastnesses to attend the sick and the afflicted?

Far from me be the idea that a doctor should not be educated, but let us be careful that we do not set too high a limit, and thus by so doing exclude many of worth to the community. A doctor, like a gentleman, is born, not made, and who cannot recall names of eminent worth in all walks of life and in all professions whose education was limited at the start, but who made names for themselves high on the scroll of fame, and who have been of vast use to humanity!

After all, the man of worth, of power, of perseverance, will rise in spite of all obstacles, and why obstruct his path by unnecessary qualifications of entrance to a medical school?

Let him, of course, be well educated, but take care not to exclude that individual who has within himself the requisites to make a magnificent surgeon, a splendid physician and a fine citizen.

Department Of Analyses, Selections, Etc.

Conducted By

MARK W. PEYSER, M. D., RICHMOND, VA.

Secretary Richmond Academy of Medicine and Surgery, etc.

Myxoscarcoma of the Right Frontal Lobe; Extensive Degeneration of the Cord.

In reporting such a case, George E. Price, Philadelphia, comments that degenerative changes in the posterior columns of the spinal cord may be associated with brain tumor and was first observed by Mayer in 1894. Since that date there have been numerous contributions on the subject, an excellent article by Batten and Collier appearing in *Brain*, 1899.

These authors examined twenty-nine cases of cerebral tumor with reference to spinal cord changes and found posterior column degeneration in over half of the series. Besold, in 1896, reported two cases of brain tumor with degeneration in Gower's tract as well as in the posterior columns, and since then other observers have recorded changes in areas of the cord (chiefly pyramidal and direct cerebellar tracts) other than the posterior columns. By far the most frequent, however, have been the changes limited to the columns of Goll and Burdach.

The posterior nerve roots have also been found degenerated by several observers.

As pointed out by Batten, the cord changes are not dependent upon either the location or character of the growth, as changes in the cord have accompanied tumors of varied character and distribution. It is true that sarcomata have constituted the majority of the tumors in the cases reported, but sarcoma is one of the forms of cerebral neoplasm most frequently met with.

The chief interest lies in the cause of the spinal degeneration, and many theories have been advanced. Hoche, Pick, Kirschgasser, Batten and Collier believe the changes result from increased intracranial pressure with increased tension in the dural sheath. Ursini, and Dinkler favor a toxic origin; Besold considers the degeneration due to anemia or cachexia, while Campbell advocates a retrograde degeneration.

The author then refers to what he believes the two most probable thories—increased intracranial pressure and toxemia.

Regarding the former theory, cases have been reported with evidence of extreme intracranial pressure, yet having no degenerative cord changes, while other cases have been recorded without pressure symptoms, yet showing distinct cord degeneration.

The theory of a toxic origin appeals to the author as being the most reasonable, as analogous changes have been found in the cord in pernicious anemia, cachexia, lead poisoning, ergotism, pellagra, etc.

The possibility of cord changes with a cerebral growth suggests the advisability of always including a search for cord symptoms in the systematic study of brain tumor cases, and may sometimes be the explanation of the symptoms apparently aberrant or irrelevant.—(*American Medicine*, November, 1910.)

Poliomyelitis in America, etc.—Considerations Regarding Treatment.

Williams, Washington, says that in the acute stage there are three indications. The first is to preserve life and prevent paralysis. There are no certain means to accomplish these. Disparaging hexamethylenamine, he speaks favorably of mercury, especially when employed hypodermically or intravenously. If the disease is protozoal, the rationale of the latter is evident, and it is possible that some arsenical derivative may be applicable. He does not recommend cupping and other derivatives, hyperemia being nature's defense against further invasion.

Special indications are: The constipation and retention of urine, which should be met by copious enemata and not by drugs to stimulate peristalsis which is deficient, not because of local toxins, but because of interference with innervation of the center. Sometimes a catheter is required, but usually a flow from the bladder will follow a third or fourth enema.

The second indication is to minimize the pain and the irritability of the attack and to secure rest and sleep. For these, he recommends the warm bath or the wet pack. Other measures having the same effect are the water or air bed; maintenance of the limbs in a semi-flexed posture by soft pads, and support of the feet by a firm one. Support of the back by a firm, but not too hard, and well warmed cushion gives great relief. The ice-cap sometimes causes great distress; and its use is not justified. An immobilizing jacket should always be used in the acute stage when the pain is severe. After inflammation has subsided, in about a week, galvanism should be used as a direct means of diminishing the pain.

The third indication is the treatment of residual paralysis. Suspension in the warm bath for an hour at a time, games being used to maintain the child's interest and cause him to accomplish little movements. The limbs should be massaged several times daily to maintain circulation.

Atrophy will be prevented by the use of galvanism, which is the only agent that can excite contractility when the motor nerve and its endings are degenerated. If treated by galvanism from the beginning, a living muscle cell will greet each regenerated nerve fiber which pushes to its destination. If galvanism is not used, the envelopes of only dead muscle-spindles will be met with. The time for these to grow must be added to the duration of every case not treated by galvanism. It is necessary to restate these simple physiological facts on account of the vogue of the pernicious statement that no treatment (electric?) of poliomye-

litis should begin until four months have elapsed. This doctrine is another instance of unthinking orthodoxy. But if the elementary physiological considerations just presented make no appeal, the author states he needs only to cite the high authority of Erb, Bergonie, Zimmern and Zappert, the distinguished Viennese pediatrician (added to that of Duchenne's final experience), who make a practice of galvanizing the paralyzed muscles just as soon as the acute symptoms subside.

The current should be applied only to those muscles which are paralyzed, and the negative pole should be placed over the muscle itself near its tendon of insertion, while the positive pole should be attached to a large electrode applied over the abdomen or other indifferent point. It is useless to stimulate the motor point except during the first two weeks—*i. e.*, before the nerve endings have ceased to be stimulated on account of degeneration.

Orthopedics is the resort of despair and the result of neglect of proper and early treatment, but the weak muscles may be reinforced with advantage by elastic suspenders.—(*Maryland Medical Journal*, December, 1910.)

Mediastinal Pleurisy.

Anders Frick, Chicago, concludes—

1. The clinical manifestations of mediastinal exudative pleurisy differ according to the part of the mediastinal pleura involved, and consequently according to the mediastinum exposed to pressure.

2. For this reason, three different forms of mediastinal pleurisy are to be distinguished: (1) Pleuritis mediastinalis anterior sinistra; (2) pleuritis mediastinalis anterior dextra; (3) pleuritis mediastinalis posterior.

3. This distinction is justified, not merely from an anatomic point of view, but because it corresponds closely to clinical facts. Pleuritis mediastinalis anterior sinistra resembles very much exudative pericarditis. The most striking symptom of a pleuritis mediastinalis anterior dextra is a very deep cyanosis of head, neck, thorax and upper extremities. A posterior mediastinal pleurisy will, provided the exudate is deeply situated and is sufficiently large, cause inspiratory stridor and sometimes a deviation of the trachea by pressure on the trachea, dysphagia by pressure on the esophagus, engorgement of the intercostal veins by pressure on the azygos veins, and paroxysmal cough by pressure on the pneumogastric nerve.

The treatment of mediastinal pleurisy, whether anterior or posterior, differs in no way from the usual one of any encysted pleurisy except that the indication for surgical interference comes earlier than in any other form. In order to be able to make a thoracocentesis or a thoracotomy at the proper moment, we should not hesitate to make not only one, but if necessary, several exploratory punctures to locate the exudate. No rule can be given as to where to introduce the exploratory needle. By minute physical examination we should try to determine where the maximum flatness is located, where the vocal fremitus is least perceptible, where the breath sounds are most distant, where egophony is most pronounced, and introduce the needlle in the outer edge of the area thus determined.—(*Journal A. M. A.*, December 10, 1910.)

Editorial.

Shall the Physician Be Educated?

A discussion as to whether or not the physician should be educated may seem elementary, and, as between yes and no, can admit of but one answer. However, the question as to whether the physician should have an *academic degree* before pursuing his course in medicine assumes another phase, and during the past few years has been brought more and more prominently to the front.

What is necessary to obtain a diploma as a graduate of most colleges? Certainly *some* of the subjects required are foreign to medicine, and are as unnecessary to make a good physician as they are to make a good minister or lawyer.

We have no desire to underestimate or disparage the value of higher college education, as an academic degree is greatly to be desired and is helpful in many ways, but is such a thing a *sine qua non?* It is not unusual to find men of ability and well informed who have yet been denied the advantages of a college education. Should they, for this reason, be debarred the right to study medicine? Assuredly not, for from this very class have

sprung many of our most talented men and leaders in the profession. It matters not how they have gained their information, if they have determination to succeed, such men may attain heights not always reached by the college graduate.

It is true all matriculates should come up to a standard of minimum educational requirements preliminary to entering medical schools, but do not make the college degree a prerequisite, and thus exclude many of our most worthy men of limited time and means from a field in which they might prove most eminently successful.

Not every graduate can write a grammatical sentence (as many editors can testify), and no more so is such a graduate necessarily a good doctor. Theory and dogma with many such men only too often take the place of practical, every-day observation and common sense, and simple ailments are frequently theorized into dread maladies.

We do not wish to be understood as arguing against a higher college or university education when possible, but we feel that the profession would lose many clever and useful men should such requirements be insisted upon.

Apropos to this question, we wish to call attention to a paper in this issue by Dr. Bulloch, of Washington, D. C., who deals with this subject briefly but clearly.

Purulent Ophthalmia of Infants.

In our present issue appears an article by Dr. Joseph A. White, Chairman of the Virginia Committee of the American Medical Association for the Prevention of Blindness. It is a plea for some legislative measure to enlarge the power of the health authorities in dealing with one of the plagues that cause so much unnecessary suffering and misery by depriving its victims of the precious gift of sight. Thousands all over the world have been made blind by this preventable disease, and it is only in the last few years that the attention of our legislative bodies has been called to the necessity of giving our Health Boards the power to take such action as they deem best to stamp out this evil.

In a number of States they have acted promptly, and Virginia should not be behind in a matter of such importance to the public health. Dr. White's paper awakened great interest at the recent meeting of the Medical Society of Virginia, created an animated discussion by the members, and resulted in a resolution from the Council, which was unanimously adopted, endorsing his suggestions for the prevention of ophthalmia neonatorum.

Seaboard Medical Association.

The fifteenth annual session of this Association, held at Kinston, N. C., December 6-8, was the largest meeting in its history, excluding the Norfolk meetings. At the opening meeting, Dr. D. T. Tayloe, of Washington, N. C., responded to the addresses of welcome, after which Dr. J. H. Hiden, of Pungoteague, Va., delivered the annual oration on "The Physician's Attitude to the Public," which was a masterpiece of oratory and good sense. Many scientific papers of special interest were presented, some eliciting an unusually wide discussion. Everything possible was done to make the meeting enjoyable socially, the President, Dr. W. T. Parrott, of Kinston, tendering the Association one of its several entertainments.

Newport News, Va., was chosen as the next place of meeting, the session to be held at some date to be decided upon in December, 1911. Officers elected for the ensuing year are: President, Dr. Clarence Porter Jones, Newport News, Va.; Vice-Presidents—Drs. N. M. Gibbs, New Berne, N. C.; J. H. Hiden, Pungoteague, Va.; H. M. S. Cason, Edenton, N. C.; James H. Culpepper, Norfolk, Va.; Secretary, Dr. J. R. Parker, Goldsboro, N. C., and Treasurer, Dr. Israel Brown, Norfolk, Va.

The Southside Virginia Medical Association

Met in Suffolk, December 13th, with Dr. R. L. Raiford, of Sedley, presiding. In addition to the usual number of instructive papers presented by members and invited guests, much interest was added to the meeting by a surgical clinic given at Lakeview Hospital by Drs. E. R. Hart, J. E. Rawls and D. L. Harrell. The meeting was brought to a pleasant close by a banquet given the visitors in the evening.

Warning to Doctors.

In spite of frequent warnings given through the State Health Department, press, etc., the

postmaster at Richmond, Va., continues to be annoyed by negligence on the part of physicians throughout the State, who persist in sending to the State Health Department improperly sealed tubes which contain germs of infections and contagious diseases. The penalty attaching to each such offense fixes a penalty of $1,000, or two years' imprisonment, or both. Though we may appear to some too persistent in continually commenting on this law, we again take that risk in the hope of protecting some doctor who has overlooked previous announcements, ere the post-office authorities take such matter in hand.

The Richmond (Va.) Academy of Medicine and Surgery,

At its annual meeting on the 13th of December, held the election of officers for 1911, with the following results: President, Dr. George Ross; Vice-Presidents—Drs. A. L. Gray, J. Shelton Horsley, A. G. Brown; Secretary, Dr. Mark W. Peyser, who was elected for the seventeenth term; Assistant Secretary, Dr. E. H. Terrell; Treasurer, Dr. W. A. Shepherd; Librarian, Dr. G. P. LaRoque; Chairman of Judiciary Committee, Dr. William S. Gordon.

The officers will be installed on the second Tuesday in January, at which time the annual banquet will be held.

The Bedford County (Va.) Medical Society

Convened in regular session, at Bedford City, December 12th. Owing to the absence of the president, Dr. J. W. Sale, the vice-president, Dr. W. O. McCabe, presided. Dr. H. H. Trout, of Roanoke, read a paper on "Recent Surgery of the Thyroids and Para-Thyroids."

The meetings will hereafter be held semi-annually instead of quarterly.

Officers elected for 1911 are as follows: President, Dr. E. L. Marshall, Big Island; Vice-President, Dr. J. A. Davis, Bedford City, and Secretary-Treasurer, Dr. W. O. McCabe, Thaxton. A pleasant feature of this meeting was a sumptuous banquet given at the Palace Hotel.

Public Health Lectures in Richmond, Va.

Prof. C. E. A. Winslow, of the College of the City of New York, a leading authority in this country on public health matters, gave a public lecture on "The Modern War Against Diseases," in the Auditorium of the John Marshall High School, Richmond, December 14th. It was the first of a series of lectures to be given under the auspices of the Richmond Health Department and the Federation of Mothers' Clubs.

Dr. Winslow said it was estimated that 200,000 of the infants who die each year could be saved if mothers would learn to observe simple sanitary laws. To bring about improved health conditions, he advocated individual education, which should be accomplished by visiting nurses sent out by health departments, to instruct parents in their homes, as well as by public lectures to be given under the auspices of local health departments.

Dr. R. Lindsay Robertson

Has been elected City Physician and Health Officer of Charlottesville, Va., to fill the vacancy created by the resignation of Dr. Roy K. Flannagan, who has accepted the position of Director of Sanitary Inspection for the Virginia State Board of Health.

The Interstate Medical Journal, St. Louis,

Announces the publication of a symposium numbber on Syphilis for January, with articles by some of the leading genito-urinary specialists. Owing to the unusual interest at present manifested in this loathsome infection, this issue should be of special interest to doctors treating such cases.

The American Journal of Surgery,

Published in New York City, announces that its January issue is to be known as the Special Southern Number, and will be composed entirely of original contributions by well-known Southern surgeons.

Obituary Record.

Dr. William Stephen Christian,

Who died at his home near Urbanna, Va., December 10th, was born in Middlesex county, Va., December 26, 1830. He was graduated from Jefferson Medical College, Philadelphia, in 1851, after which he entered upon a life of service to others, such as is seldom given a man

to enjoy. When the Civil War broke out, he organized a company of cavalry (afterwards known as Company C, Fifty-fifth Virginia Volunteers), of which he was elected captain, and espoused the Southern cause. He was rapidly promoted to rank of major and colonel, and was later made superintendent of one of the hospitals. He was himself twice wounded, and was once a prisoner of war at Johnson's Island.

At the close of the war, he took up the practice of his profession in North Carolina, but later returned to his native State and County, where he ministered to the needs of the suffering, and served his County in many positions of trust and honor to the time of his death. He became a member of the Medical Society of Virginia in 1886, and was orator of same in 1888 and 1903. Though absent from the meeting of the Society in 1904, he was unanimously elected its president for the session of 1904-1905, and was made honorary member in 1905. He was at one time a member of the Medical Examining Board of Virginia, county chairman of the Democratic party, and for years also served as county superintendent of schools. Dr. Christian was a member and pastmaster of the Urbanna Lodge of Masons. He was twice married, first to Miss Helen Steptoe, of North Carolina, and the second time to Miss Alice Woodward, of Middlesex County, who survives him. He leaves two children, one of whom is Dr. C. C. Christian, of Urbanna.

Mr. Louis Dohme.

It is with sincere regret that we note the death in Baltimore, Md., December 12th, of Mr. Louis Dohme, of the well-known drug firm of Sharp & Dohme, of which he was founder and president. In his death, the medical profession loses a good friend and co-worker—one ever alert to work for its best interests.

Resolutions on Death of Dr. Landon B. Edwards.

At a regular meeting of the Petersburg Medical Faculty, held December 15, 1910, the following was adopted, as an expression of the sentiment of the faculty:

When the news of the death of Dr. Landon B. Edwards went out, there was cast over the hearts of the physicians in this city and hundreds of others throughout the State a veil of sadness not readily lifted. In him we had a consistently loyal friend and adviser—one whose service in behalf of the uplift and organization of the medical profession in the State will continue for a long time to bear fruit and to bless his memory.

Dr. Edwards' many excellent qualities as a man and as a physician secured for him a high place in the profession of the State. For forty years he was the efficient Secretary of, and the leading spirit in, the Medical Society of Virginia. Untiring in his service and unbounding in his enthusiasm for the Society's welfare and in the general promotion and upbuilding of the profession throughout the State, he wielded a large influence for good.

His personality was distinctive. Firm in his convictions, honest in his purposes, an aggressive advocate for what he believed to be right, faithful to every duty and trust, fair and honorable in his dealings with his fellow-man, strong and loyal in his friendships, ever winning and keeping unbroken the loyalty of his friends, vigorous in intellect, varied in mental acquirements, sincere, clear and forceful as a medical writer, wise in council, his private character and personal and professional ideals always lofty, when he died a shining light went out from amongst us, and we mourn our loss. Truly he belonged to that class of men who have "strong minds, great hearts, true faith and ready hands." Gone to receive his crown of glory, he left as a precious heritage a history of a life's work of good and useful deeds done his fellow-man and a consecrated service to his God.

With his bereaved family and his host of friends, we, the members of the Petersburg Medical Faculty, grieve the loss of so good and useful a man.

Resolved, That a copy of the foregoing be filed with the Secretary of the Petersburg Medical Faculty and that a copy be sent to the family of Dr. Edwards.

W. F. Drewry,
John G. Rennie,
E. J. Nixon,
James E. Smith.
Committee.

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Original Communications.

THE SURGICAL ASPECT OF GOITER.*

By RICHARD P. BELL, B. A., M. D., Staunton, Va.

That surgery occupies an important place in the treatment of the various forms of goiter is now admitted by perhaps all of us, but the position in this disease that internal medicine and surgery bear relative to each other is unfortunately a point of misunderstanding and at times of dispute. And this state of affairs bids fair to continue until a great deal more shall have been learned as to the true nature of thyroid diseases, their remote and immediate causes, their pathology, and the meaning of associated changes in various organs and tissues. Much has been learned in the past two decades, and valuable knowledge is being added each year, but the true heart of the matter does not seem to have been reached and will not be reached until some fortunate investigator unveils the mystery of the exact nature of the thyroid secretion, and its relation to the so-called internal secretion of other ductless glands. At that day, we or our successors may look back at the present-day efforts toward treatment of thyroid disease with a feeling of regret that such things were ever done; but until then we have only to go ahead with the knowledge we have and combat the condition with whatever weapon may seem most appropriate to the case in hand, whether a drug, a serum, or a scalpel.

In discussing the surgical aspect of goiter, account must needs be taken of the different forms of the disease. These very briefly are as follows:

1. *Parenchymatous Goiter.* This is the commonest form, and is seen in great numbers in communities where thyroid disease is prevalent. In this variety, usually the entire parenchyma of the gland is affected and both lobes and isthmus enlarge simultaneously and in most cases slowly. The enlarged gland has a homogeneous feeling, its consistency varying according to the amount of colloid material contained in the alveoli. So-called colloid goiter is here classified under this heading. No systemic symptoms occur in the great majority of cases.

2. *Nodular or Adenomatous Goiter.*—This variety is characterized by the presence of one or more adenomatous nodules in the body of one or both lobes. It is usually asymmetrical and can be diagnosed by the palpation of a solid tumor of fairly hard consistency in the gland substance.

3. *Cystic Goiter.*—As its name implies, this form is characterized by the presence of fluid. The cysts may be single or multiple, and vary much in size. They are caused by degeneration and liquefaction of colloid material. Diagnosis is easily made. This form of goiter is rarely an independent condition, the cystic degeneration usually occurring in one of the preceding forms.

4. *Fibroid Goiter.*—This variety is characterized by fibroid changes and sometimes by calcification in goiters of other types.

5. *Exophthalmic Goiter or Graves' Disease.*—This, the most interesting type of the thyroid diseases, is marked by a more or less complete chain of symptoms, local and general, which are too familiar to be enumerated and described here in detail. Suffice it to mention the four classical signs—tumor, tremor, tachycardia and exophthalmos, all of which may be present, or tachycardia and any one or more of the others. The gland is not necessarily enlarged, but according to Kocher, is always pathological.

There are other classifications of goiter, most of them more complex than the foregoing, the numerous varieties being dependent on slight

*Read before the Augusta County Medical Society, at Staunton, Va., November 2, 1910.

pathological differences; but for all practical purposes this classification is sufficient.

The first four varieties—namely, parenchymatous, nodular, cystic and fibroid, are called simple goiters. They are local conditions only, and cause no general symptoms except by mechanically interfering with the neighboring structures, or unless the disease advances to such a stage that there is little or no functioning gland substance left. Then metabolic symptoms appear.

On the other hand, the fifth variety, the exophthalmic, is a complex goiter, and, with or without appreciable thyroid enlargement induces grave and sometimes rapidly fatal circulatory, nervous and digestive symptoms. The simple forms of goiter are always liable to conversion into the exophthalmic type; hence any goiter patient may be regarded as a possible future victim of Graves' disease, and should be watched accordingly.

Much good work has been done upon the pathology of the various goiterous conditions, but as yet little actual benefit has been derived therefrom. Although the pathological changes in the gland itself are pretty well known, their significance is by no means understood, and the reason for this is apparent. For when we confess that we do not know the nature of the thyroid secretion in health, nor its mode of entrance into the circulation, how then can we expect to understand the meaning of a pathological lesion in the gland?

When we come to consider in any case of goiter what treatment is to be employed, no general laws may be absolutely relied on to guide us. In the simple forms, usually, the physician will have ample time after first seeing the case to study it carefully and to institute medical treatment according to his best judgment. If a cure is thus obtained, well and good; if, however, after the lapse of a reasonable time no improvement is noted, but on the contrary the growth continues, the time will come when a decision will have to be made as to whether this mode of treatment is to be abandoned or continued. At such a time the following rules will be of assistance in coming to a conclusion.

Surgery should be resorted to in the treatment of simple goiter under these conditions:

1. Progressive growth of the tumor, even though slow.
2. Rapid growth of the tumor.
3. Pressure on the trachea with difficulty in breathing.
4. Pressure on the œsophagus with difficulty in swallowing.
5. Change in the voice, indicating pressure on the recurrent laryngeal nerve of either side.
6. Indications of change to the exophthalmic form, tachycardia, nervousness, etc.
7. Inconvenience and deformity owing to the mere size of the growth.
8. Any indication of degeneration of the growth, especially in nodular goiter.

The main thing to be feared in simple goiter is interference with the function of neighboring structures by the pressure of the enlarged gland. A tumor in either lobe or the isthmus may encroach on the trachea and by distorting its course or compressing it, cut down the size of the air passage and greatly discommode breathing; a lateral extension of either lobe may insinuate itself between the trachea and œsophagus and cause difficulty in swallowing; pressure may be exerted on either of the recurrent laryngeal nerves and the voice may thus be affected; the great veins of the neck may be partially occluded and the heart thus indirectly embarrassed; or what is perhaps the most serious of all these conditions, a median downward growth of the isthmus behind the sternum, may press on the vital structures in the mediastinum at the same time compressing the trachea. In any of these conditions surgical interference is imperative and no other form of treatment need be considered. So much for the indications for operation in simple goiter.

In the exophthalmic form, certainly no other line of treatment can as yet claim a proportion of cures comparable to that of surgery. Wonderful results have been obtained in some cases by sera, in others by drugs—notably of late by the quinine treatment, and in some by electricity, but none of these treatments seem to be dependable in the great majority of cases and relapses occur under favorable circumstances in many of the cases supposed to be cured. As advances are made in serum therapy and the chemical actions of various drugs become better understood hope grows strong in the internist

that the day is at hand when operations for exophthalmic goiter shall be no more. May this prove true, for certainly surgery should be glad to be rid of this difficult class of cases; however, at the preesnt time Kocher cannot be disputed in his statement: "To say that surgical treatment of exophthalmic goiter is still the best is not enough." He backs up this remark by pointing to a series of 320 operations with 83 per cent. complete cures and a mortality of 3.4 per cent. Krecke has collected the results of 888 operations in European and American clinics with 9 per cent. mortality. Charles Mayo, who has operated on more exophthalmic goiter than any American, reports a 5 per cent. mortality in his last 200 cases with 70 per cent. cured, or greatly improved, in 167 of these cases that could be traced. That operation is indicated in all cases of exophthalmic goiter would be a rash and unwise statement; it can be truly claimed, however, that in the present state of our knowledge of the disease, surgery is our main reliance when complete and lasting cures are sought.

A certain percentage of cases of this disease may be classified as very acute or fulminating. The onset is sudden, and in an incredibly short period of a few weeks the symptoms are fully developed. These cases usually die treated or untreated and surgery seems to offer no certain or even probable hope. It is in the more slowly developing forms in which good results are obtained by operation, especially in these cases in which the nervous and other general symptoms are preceded by enlargement of the thyroid gland. Those cases in which the symptoms of Graves' disease follow upon a simple goiter of long standing are most favorable for surgery.

The commonly accepted theory of exophthalmic goiter is that it is the consequence of a hypersecretion and absorption of the products of the gland caused by a toxemia the nature and origin of which are undetermined. To combat and cure the condition, the aim of surgical procedure is to destroy the function of a portion of the gland, either by excision or by cutting off a part of the blood supply. Thus the direct source of the excessive secretion is eliminated, and the system is able to take care of the remaining secretion.

The ligation of the superior thyroid arteries either as a final operation or a palliative one preliminary to partial excision has been much practiced in recent years by some of the most eminent goiter surgeons. In selected cases, either far gone, or slightly affected, this is the logical procedure, but in the great majority of cases, it is best, if possible, to perform the operation or partial excision at once, and thus avoid subjecting an excessively nervous patient to two ordeals.

In any consideration of thyroid surgery, the associated parathyroid bodies must not be neglected. These parathyroids are small ductless glandular structures, usually four in number, and are now known to be essential to life, and to exert with the thyroid an important influence on metabolism. Their exact nature and function are undetermined, but the presence of at least one of them is indispensable.

The essential points of anatomy of the thyroid are these: It is a ductless gland having two lateral lobes and a connecting isthmus, lying in front of and being attached to the larynx and upper rings of the trachea. It is enclosed in two capsules, the external or fibrous capsule being simply a layer of the deep cervical fascia, the internal or capsule proper being a thin membranous structure closely investing the gland and sending in trabeculæ to divide the alveoli of the gland substance. Each lateral lobe on its posterior border overlaps the common carotid artery, touches the esophagus and pharynx, and is in relation to the recurrent laryngeal nerve which is imbedded in the posterior fibrous capsule. The parathyroids are also situated behind the lateral lobes and are usually found embedded in the fibrous capsule two above and two below. Their exact location varies, especially so with an enlarged thyroid. The arteries of supply are four in number, two coming from the common carotids and entering the upper parts of the lateral lobes after running across their fronts; two coming from the thyroid axis of the subclavian and entering the lateral lobes low down. There are three veins on each side, two of which run vertically downward from the lower poles of the lobes.

Not only must the operator have these salient points of anatomy well in mind, but he must also have the ability, which comes only from experience, of recognizing tissues regardless of their relative location. He must, too, feel a

confidence in his ability to deal with hemorrhage.

The question of anesthesia, whether local or general, must be decided by every operator according to his experience or taste. Cocaine anesthesia is more popular in Europe than in this country. The reasons for and against it are obvious and will not be discussed here. A general anesthetic in goiter cases, especially of the exophthalmic variety, should be administered only by an expert. Anesthesia in these cases is not merely a detail.

The position of the patient on the table, the placing of the dressings for the screening off of the anesthetist and the maintenance of a sterile field are matters of the utmost importance and should receive all necessary attention.

The operations commonly performed on goiter are three—namely, ligation of the superior thyroid arteries, enucleation of cysts and solid tumors from the gland substance, and partial excision. The last is usually limited to one lobe, or one lobe and the isthmus. Complete excision is now never done. These operations will not be described here as they can be found in great detail in several modern surgical works.

Much has been written on the necessity of avoiding the removal of the parathyroids. The danger of doing this has perhaps been magnified as when partial excision is done, there will in nearly every case be two parathyroids on the other side which are in no danger and two are sufficient. However, there is no great danger of removing any of them, nor of injuring the recurrent laryngeal nerve, if in removing a lobe the true capsule of the gland be closely adhered to and if the posterior part of the capsule be left intact. The three great commandments in goiter surgery are, keep a dry field by avoiding hemorrhage, watch your tissues closely, and stick close to the capsule when you do any cutting. In exophthalmic goiter excisions, drainage for one or two days after operation is highly necessary.

The dangers of thyroid operations have been materially lessened and the mortality greatly reduced in the last decade by increased knowledge of the thyroid function, the discovery of the necessity of the presence of the parathyroids, and the vast improvements in operative technique. Increased success with exophthalmic cases has been due in some measure also to the adoption of careful and intelligent treatment preparatory to operation for the purpose of abating, as far as possible, the nervous and cardiac symptoms. Improvements in post-operative treatment have also had their results.

The tendency to regard surgery as a last resort in goiter treatment is to be condemned, for in far too many cases, operation is avoided until degenerative changes in the heart muscle and in other organs render the patient a very poor operative risk when the surgeon is finally consulted.

SYPHILIS AND NICOTINE AS FACTORS IN CARDIOVASCULAR DISEASE.*

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Spirocheta pallida, sero-diagnosis after Wassermann, and "606," let us hope, mark a new epoch in syphilology, if not in medicine as a science. After centuries of search, the cause, spirocheta pallida, has been found. After years of investigation, a method of diagnosis, sero-diagnosis of Wassermann and its modifications, has been discovered by which the latent and obscure pathology of syphilis can be detected; and, within the last few weeks, I might say, after years of reliance upon mercury and potassium iodide, a specific drug, acting with the greatest rapidity and thoroughness, seems about to be announced as obtained in the form of Ehrlich's "606."

We have known for years how largely syphilis enters into the pathology of many diseases of the skin, organs, glands, nervous and cardiovascular systems. The vast array of skin diseases caused by syphilis, the many diseases of the internal organs due to syphilis, the varied disorders of the nervous system and the cardiovascular systems caused by syphilis were recognized by the concomitant signs and symptoms and by the history of the cases. But now with syphilis denied by the patient, with the cause obscure and pathology unrecog-

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nized, the sero-diagnosis is throwing new light upon the frequency of syphilis as the fundamental factor in the etiology of diseases of the nervous and cardiovascular systems. In fact, during the short time elapsing since the discovery of the Wassermann reaction and its modifications to the present time, most striking results have been gotten in the matter of detecting the syphilitic cause of many morbid phenomena apparently not in any way connected therewith, and such relations have been verified by the promptness with which specific treatment has accomplished cure. In no branch of medicine has this fact been more emphatically prominent than in the diseases of the heart and blood vessels. And I believe that I am not far wrong in the assertion that the relationship of syphilis and cardiovascular diseases is far more intimate and frequent than is even now supposed, and that the application of the sero-diagnostic method to the unearthing of syphilitic pathology will in the future disclose, not only its etiologic frequency, but also afford us solution of the problem of therapy.

The old writers had comparatively little to say of the early effects of syphilis upon the heart. They noted the changes incident to the tertiary stage, and generally assumed that the tertiary manifestations were rarely, if ever, discovered during life unless they appeared in the form of aneurysm. Now, of course, clinical evidences of syphilis are noted earlier. The fact is that clinical observation leads me to believe, and this belief is confirmed by many other clinicians, that syphilis not infrequently shows in the early part of the second stage in the heart. It may take the form of an hyperplasia of tissue about the orifices, or it may occur as an endocarditis with dual infection. A careful examination of syphilitics during the early manifestations will very frequently show adventitious sounds in the heart. Hirschfelder, quoting Grassman, calls attention to the frequency of early syphilitic heart murmurs. He observes them as generally systolic, sometimes accidental, sometimes functional. In 40 per cent. of syphilitic cases he was able to elicit heart murmurs. Such cases are characterized by symptoms of dilatation, and marked by derangement of the rhythmic heart action, giving arrhythmia, bradycardia, or tachycardia. In addition, clinically, there may be observed precordial distress, anginal symptoms and a sense of suffocation. Of course, in these cases anemia may be present. Blood-pressure is low. Fever not infrequently is observed.

This point is well illustrated by a case now in my service referred to me by my colleague, Prof. Murrell, of the Chair of Syphilis and Dermatology: eight months ago initial lesion appeared. No skin manifestations; glandular enlargement now discernible; treatment has been continued since early in the infection. Patient recently developed sense of oppression over precordium, periods of great weakness and faintness. Temperature mounts two degrees above normal after the slightest exercise, and upon becoming quiet fever subsides and profuse sweat follows. Examination of heart shows soft blowing systolic murmur at apex transmitted to axillary line. Wassermann reaction is positive. A careful examination by an excellent examiner a year ago elicited no cardiac murmur.

Before proceeding, I desire to make some general observations upon the Wassermann reaction. The reaction during the secondary stage is positive in 98 per cent. of cases; in the tertiary stage it is positive in from 90 to 95 per cent. of cases. Those who have had syphilis in early life give positive reaction in upwards of 50 per cent. of cases. The positive reaction can be secured in the apparently healthy children of syphilitic parents. Older heredo-syphilitic children give positive Wassermann reaction. It must be remembered that in spite of the negative Wassermann, syphilis in some instances may exist.

In the late stage of syphilis, the heart is most seriously affected, and it is during this time that the clinical picture is indicative of a more serious anatomical change in the heart and vessels. The old observers recognized its etiologic relationship to aneurysm of the great vessels, and frequently noted the connection between syphilis and aorta changes both in the valves and the vessel wall. But now, in the light of the sero-reaction in syphilis, there is a consensus of opinion

upon the observation that disease of the aortic valves, aortitis, and aneurysm of the ascending arch and descending aorta is generally of luetic origin. Incompetency of the aortic valves, unassociated with other lesions, may be taken to mean, as a general clinical rule, that syphilis is the etilogic factor there. Adler, quoted by Collins and Sachs, claims that syphilis should be considered a possible factor in every case of heart disease. While this seems a radical position to take, at the same time it appears to be true that the heart shows many lesions of syphilitic nature without the disease giving any other clinical manifestation. It may be asked very pertinently, How can the clinician distinguish between cases of luetic endocarditis and pyogenic endocarditis? It is such a condition of doubt that the Wassermann reaction when positive justifies the therapist in pushing the specific treatment; although the absence of a positive reaction does not negative syphilis. Another aid in this differentiation may be employed by the cultivation of any pyogenic organism from the blood by blood culture.

In late adult life, when it is possible to make out manifest disease of the arota or adventitious sounds emitted from the aortic area along the great vessels, be suspicious of syphilis, particularly so when there is no apparent kidney complication. Citron has shown by autopsies on cases of aortic disease that sixty-two per cent. were syphilitics. Collins and Sachs state that in their series ninety-two per cent. gave positive Wassermann reaction. In Longcope's 930 autopsies on syphilitics, twenty-one cases of aortic disease were noted. Krefting's twelve cases of aortic disease, confirmed by autopsy, gave eleven positive reactions. The valves show thickening, and occasionly a whitish fibrosis on the endocardium underneath the valves. In the aorta, sclerosis is found, irregular in extent, and in some cases more extensive than in others. In the intima there is, microscopically, a heaping up of cells of connective tissue type without any marked degenerative changes. In mesaortitis however, there are areas of necrosis involving the muscular and elastic tissue. This is the usual and prominent luetic change, and is very uniformly found. In this degenerative mass of tissue the spirocheta pallida has been found by Wright and Richardson.

The further consideration of changes found in syphilitic hearts will make interesting the summary of Marmorck, quoted by Hirschfelder. In fifty cases following tertiary lesions, there were noted—gummatous infiltration, 10; fibrous myocarditis, 9; gummatous and fibrous, 8; endocarditis, 2; coronary arteries, 3; pericardium, 1; myocardium and pericardium, 15; peri- and endo-cardium and myocardium, 1; myocardium and coronary arteries, 1.

Clinically, these cases of tertiary or late syphilis show a varied symptomatology. In some cases the typical Adams-Stokes syndrome is observed. This condition is characterized by a very slow pulse which may disappear entirely before the attack; by the presence of small visible pulsations in the neck where the jugular pulsations are seen to be double the pulsations of the carotid; by faint sound over the left sternal margin denoting the action of the right auricle. The X-ray shows the independent action of the auricles and the ventricles. Finally, the tracing of the venous pulse and the carotid artery or the apex shows the block.

In cases involving the myocardium as well as the aortic region, the non-response to digitalis treatment will be noted. The cases will show shortness of breath: dilatation; low blood pressure; cyanosis and sometimes terminate very suddenly in death.

Sudden death is especially to be feared in cases of this kind, particularly so when there appears concurrent acute infection, such as influenza, pneumonia, pleurisy, typhoid fever, etc. The clinician cannot be too careful in the therapeutic management of such cases, for the remedies ordinarily used in combating the fever of acute infections may be not only useless but actually harmful. Several cases have come to my attention in which sudden death threatened, and in one case occurred, where the luetic element of the case had been unrecognized.

Not only in the heart are the early signs of syphilis to be looked for during the secondary stage, but also in the arteries are to

be found early signs of arteritis. It is generally accepted that in spirocheta pallida infection, inflammatory or hyperplastic changes are to be found early. This is the new view. Nonne, of Hamburg, insists upon this view. He maintains that arteritis begins in many cases very soon after the primary invasion of the spirocheta pallida through the primary lesion. Adventitious sounds along the great vessels of the chest, and the cerebral and nervous phenomena that mark some cases of syphilis, are but expressions of this beginning arteritis. The general symptoms of arteriosclerosis will follow in such cases, and the late stage of syphilis may be characterized by the terminal manifestations of arterial degeneration, as shown in hemorrhage of the brain, in thrombosis of some cerebral artery, in softening and cerebral degeneration.

In the arterial structure aneurysm plays a prominent part from the standpoint of syphilis. Since Lancisi, in 1728, down to the present time, syphilis has been recognized as a cause of aneurysm, particularly of the vessels of the thorax. I shall not go into any explanation or classification of this condition, but briefly call attention to some of the most frequent sites, and mention some clinical points in connection with them.

In the ascending aorta aneurysm shows clinically attacks of angina, of cardiac asthma, precordial distress, with pain radiating down arms, distention of veins of head, neck and upper part of the body. In aneurysm of the arch of the aorta change in voice is noted, as also is brassy cough, difficulty of swallowing and pain in the throat. Dyspnea and suffocation are seen. The pupils are unequal, and the left side of the body shows distention of veins and swelling. Adventitious sounds, sometimes systolic and sometimes diastolic murmurs are heard. X-ray shows enlargement, etc.

Aneurysm of the innominate artery shows much the same symptoms as the arch except the right side is affected; and aneurysm of the descending aorta is marked by sharp, lancinating, sometimes boring pains in the back under the left shoulder-blade, in the side and left abdomen. Shortness of breath and pain in back with pulsation mark this condition. There is dullness on percussion, and adventitious sounds over the tumor on auscultation. X-ray throws shadow to left of sternum, etc.

Tobacco.—Before closing this paper, I desire to speak briefly of the clinical effect of tobacco using upon the heart and blood vessels. And I shall assume that nicotine is the toxic agent, and that it has the power of affecting the accelerator sympathetic fibers of the heart, and that it increases blood pressure.

Clinically, I have been impressed with the great importance played by tobacco in certain cardiovascular syndromes. For instance, it is not an uncommon thing for me to have a patient with some heart affection attributable to the vocation of tobacco handling. Among this class of cases, I recall a prominent tobacco manufacturer who is now under my care, he having, during the last year, had several alarming attacks of angina pectoris. He is not a tobacco user, but he spends much of his time in the factory during certain seasons, and during this time he suffers most. There is no murmur. Tension is high. Arteriosclerosis is present.

Nicotine poisoning in confirmed middle-aged tobacco users shows itself in form of a steno-cardia, or angina pectoris. Such cardiac symptoms are accompanied by tachycardia, palpitation, precordial pain and irregularity in heart action. Often there will be no murmur present at all. When tobacco and alcohol are used together, these symptoms are more marked, and the remedial measures resorted to accomplish much less than in the case when the degenerations of alcohol are not present.

High tension is superinduced by the vaso-constricting effect upon vascular system of the nicotine, and acceleration of the heart-rate in middle life, and thereafter has a tendency to bring about general arteriosclerosis.

The most lamentable effect of tobacco is seen in the instance of the young when addicted to the excessive smoking of cigarettes. This is particularly marked in those who constantly inhale the smoke. These cases illustrate the acute toxic action of nicotine. They show weakness, giddiness, intense palpitation, tachycardia, precordial oppression, and cardiac ir-

regularity; with these appear certain concomitant mental and nervous symptoms.

Finally, it may be said of tobacco smoking that it produces disease in the heart and blood vessels, and that this varies in degree with individuals. In some it may produce little appreciable harm, in others it is very harmful. In some the deleterious effects are not noticeable during early life. In later life the heart symptoms may appear in connection with arteriosclerosis, nephritis, or intestinal intoxication. In all cases of heart disease tobacco should be interdicted unless it be in certain very old confirmed tobacco users where the nicotine can be borne.

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THE PART OF MEDICAL MEN AND MEDICAL SOCIETIES IN THE PUBLIC HEALTH MOVEMENT.*

By CHARLES R. GRANDY, M. D., Norfolk, Va.

In this day and generation, when all the popular magazines are printing articles on sanitation and a number of lay societies are actively engaged in an attempt to improve the public health it will not be amiss to consider the part that our medical men and medical societies are taking, or should take, in this movement. And I am going to try to look at the subject from the standpoint of the medical practitioner, rather than from that of the health officer or of the general public; and I am also going to put the interests of the profession first.

In former times it was always the custom to consider the physician as a sanitarian and as the proper person to whom the public should look to start and carry through any sanitary movement. But public health is now the fad, and special societies are springing up on every hand to deal with one or another feature of this great problem. In some of these societies, we find physicians occupying the position of leader, while in others it is said, more or less openly, that physicians are the greatest hinderance to the movement. Now, from a practical standpoint, ought this duty to devolve on us? Ought we to be called on to prevent disease when we, as a rule, are only paid to cure disease after it has developed? In plain English, ought we to be expected to do work for the public good which, in the end, might tend to decrease our incomes? No other class or profession would be called on to do this, nor would it be expected of us if it would really reduce our incomes as much as it might appear at first glance.

To begin with, we all must realize that the public health movement has come to stay and that it is going to be pushed, whether we, as a profession, are going to take part in it or not. And, consequently, if our incomes are going to be hurt by this movement they are going to suffer, whether we take an active part or merely stand aside, for our traditions will not allow us to fight it openly. But why should our incomes be hurt by having the average lives of our patients increased, or by having the health of the poorer people so improved that they can have a chance to make enough money to pay our medical bills? The larger part of a general practitioner's work is made up of ills, which are not, and should not, be fatal. These cases will occur, whether people are protected from infectious diseases or not, and this class of work is, with me, usually more profitable than cases of typhoid or tuberculosis. Besides this the diseases due to "wear and tear"—those diseases covered in large part by the term arteriosclerosis—will be increased by lengthening the average life, so that in the end our incomes may be augmented rather than diminished.

Now, if we have no financial reason to passively oppose the public health movement, will it be to the advantage of the individual doctor to take part in the campaign and keep posted with what is going on? It will take some of his time, and, maybe, cost him a little in dues to one or more of the societies engaged in this work. But the public still looks to the medical profession for information in regard to the public health, and the individual is still apt to come to *his doctor* when he wants advice as to how to keep well, though he does not always think this advice worth paying for.

Even now we occasionally hear the cry that the ordinary doctor knows little or nothing about sanitary matters, and that his patients

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should look elsewhere for advice of this kind. Hence, if we do not keep up with, and take part in, what is being done in the way of sanitation, our patients may get to believe this, and, consequently, get to going to others for advice upon matters which affect the health of their families. And this may prove the first step towards losing faith in the family physician, and only calling him in to cure an ever decreasing number of diseases. Instead of consulting him they will soon decide for themselves what specialist they should visit, and are apt to drift to the osteopath and mental-healer. Besides this, our patients can soon be taught that they can with advantage seek the advice of their doctor in order to keep well, as is shown by the fact that people are already doing this when they put their babies on artificial food.

Now, I do not want you to understand by what I have just written that I consider that all physicians are equally fitted to become health officers, or that the latter should not have special training. But I do believe that a health officer cannot accomplish all he should without the intelligent co-operation of the physicians of the community, and that he can only get the people thoroughly interested in sanitary work by getting them to call in their family doctors and to discuss with them the steps necessary to protect the health of their families. At the same time the health officer must not expect the medical profession to do the work *he* is paid to perform and must not neglect the other means at his command to attract the attention of the laity.

This is the point where the medical societies can be of great assistance. They can advantageously act as the medium of contact between the physician and the health officer, on the one hand keeping the practitioners informed as to what the sanitary authorities are trying to accomplish, and on the other hand advising the health officers as to how they can best carry out their work. They can also be of further help to the health authorities, as the endorsement of a local medical society is generally sufficient to get the councils to pass any sanitary ordinance that is put forward by a health officer, who, for this reason, if for no other, will always find it expedient to refer new ordinances to the medical society. It is also a good plan for a local society to turn over one or more meetings each year to the health officer, so that he can keep the profession informed as to the status of sanitary work in the community. The society should also have meetings to which the public is invited, where live public health problems are discussed in a way that everybody can understand. This public co-operation between the health authorities and the medical profession has proved of the greatest benefit to the communities in which these meetings have been held, and they can also be extended to cover discussions of public health legislation. Some societies have exhibits which can be used to impress sanitary matters on the public, such exhibits being especially useful in the public schools, where a lasting impression can be made on the minds of the young auditors. By thus aiding in the public health movement, a local medical society not only aids its members (the prime object of all medical societies), but it establishes itself before the people in a way that cannot be reached by any other method. And this confidence in the society tends to make the public respect its members.

If it is, then, to the interest of the individual medical man and the local society to assist in the public health movement, cannot they do all that is needed, and is there anything left for a State Society to do? Whereas, the greater part of the work of helping the individual members and keeping up their position before the public must fall on the local societies, still these societies need some directing hand to keep them informed as to what is going on and to draw them together so that the profession of the State can act as a whole in important matters, and this great duty devolves on the State Society. It is not enough that a State Society hold one social and scientific meeting a year. Matters of vital interest to all the members are constantly cropping up, but as a general thing the majority of our members never know anything about them till the precious moment, when they can be helped or killed, has been passed. Let me draw on the past for a few examples. It is a well recognized fact that without a proper system of vital statistics it is impossible for a board of health to show results or to really know what it is accomplishing, as, without figures, the

health officer will only have his opinion or imagination to draw on when asked what he has already accomplished. Now in 1907, Dr. Paulus A. Irving, at that time Secretary of the State Board of Health, had introduced in the Legislature a bill calling for the issuance of burial permits and the collection of vital statistics. This bill was virtually defeated by one man, who sent letters to the undertakers in the country districts and got them to work against it, our own lack of organization preventing us from getting the physicians to exert a counter influence. Last session of the Legislature a bill to license chiro-practitioners passed the Senate, but was defeated in the House by the efforts of Dr. Stephenson, who was also responsible for the defeat of a bill to allow the practice of optometry. If these two bills had passed they would, in great measure, have vitiated the effect of our law regulating the practice of medicine, and would have let in numbers of irregular and irresponsible practitioners. Now, one of the most important public health measures is the protection of the people from vicious and ignorant quacks, which is accomplished by a good Medical Practice Act and an efficient State Board of Medical Examiners. These men are chosen by our Society. They are acting in our interests as well as in those of the people at large. Yet I have heard that our Legislative Committee, acting according to instructions from this Society, was too much occupied in the futile attempt to do away with our license tax to give any aid either in defeating the bills to allow the practice of optometry and chiropractice, or to aid in passing an up-to-date medical practice act. In some other states the state society notifies the secretaries of the local societies that matters of interest to the whole profession are pending and these secretaries see that their members know what is going on. In this way, the profession can be aroused and local pressure brought to bear where it is most needed.

The State of Virginia will in the near future have to face various fads and evils which are appearing in different parts of the country. Bills to license practitioners of optometry, chiro-practice, and the devil only knows what else, are being introduced in the Legislatures of all the States in the Union by well organized bodies of men, their purpose being to make holes through the various Medical Practice Acts and allow their students to practice without legal supervision. The anti-vivisectionists, those cranks who seem to consider a dog of more value than a baby, are now attacking the individual Legislatures, using the most specious arguments and appealing to all sorts of prejudice. The manufacturers of patent medicines and adulterated foods have combined and formed "The National League for Medical Freedom," whose first duty seems to be that of attacking and belittling regular physicians and of interfering with sanitary legislation. They have persuaded the members of the Christian Science faith that their "religious liberty" would be imperilled by the formation of a National Public Health Department. If they succeed in defeating this measure, their next logical step will be to attack the medical practice and pure food laws in the different states, so as to allow any one the *freedom* of practicing medicine and of selling and taking patent medicines and *dope* without legal restriction.

These movements will affect the public as a whole, and it is safe to say that every member of the Medical Society of Virginia believes that they will harm the public. And it is also safe to say that each and every one of us is willing, individually, for his own protection, as well as for the public good, to do what he can to prevent these steps backward. But what can individuals do against organization backed by money? And how can the members of this Society do anything if they do not learn of a movement in time to take a hand in one direction or another?

Last year the Owen Bill, aiming to establish a National Health Department, was referred to a committee of the Senate, of which Senator Martin was chairman. The profession of this State could have exerted a great deal of influence on him as a Virginian, but our State Society was not organized so as to be in touch with the local societies, and it was impossible to reach our individual members; and, as a consequence, we could only get a few health officers to write to Senator Martin.

By this inability to act together the medical profession in Virginia is losing its old high

place in the estimation of the people, while the politicians think they can hit us with impunity, as has been shown more than once in the last few years. Nevertheless, I do not believe that many of our members know that, when the nomination of the members of the State Board of Health was taken away from this Society, the advocates of the bill said that it should be done, because the medical profession did not know enough, and did not take enough interest in public health matters to nominate the right men.

Shall we sit still and allow this impression to remain, or shall we not get together, and, as individuals, as local societies, and as a State Society, do such good work in sanitary matters that we will once more regain the confidence of the public? Individual members are even now doing work of the kind I have been referring to, and are getting the confidence and support of the people. The trouble is that each one is working alone, no one knowing what the others are doing. Yet, all are working for a great common cause, and all might be brought together and aided by a guiding hand supplied by this organization. But this cannot be done by a society which is only active four days in the year, for it will require the executive officer of the State Society to be in constant touch with the local societies throughout Virginia. One society must be kept informed as to what the others are doing, and these societies must be fostered and built up by the State organization, so that they can always be ready to act together for the good of the public health and for the elevation and protection of the profession in Virginia.

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EHRLICH-HATA PREPARATION OF "606."

By THOMAS B. LEONARD, M. D., Richmond, Va.

During the last month or so it has been my privilege to observe the action of arseno-benzol in syphilis, under the skilful administration of Dr. J. A. Fordyce, of New York City. Most of the results are so wonderful, it would seem that the dreaded distemper has been robbed of its horrors.

It is understood, of course, by everyone who has followed the literature, that a reserved attitude should be assumed, even when the results from the drug have been well-nigh miraculous; for it is impossible for anyone to surmise what the ultimate effect of the drug will be. Had it been conceded by use on sufficient number of patients and after lapse of the necessary time that the disease was absolutely cured, there would still remain the question as to the effect of the drug on the human organism in bringing about this marvellous result.

So it is, that the men who have used it most on this side of the Atlantic, maintain a conservatism that is more apparent in their personal conversations than in written articles. I am positively aware that patients are daily advised to procrastinate in taking the remedy, not because confidence in it is not great, but for the reason that the doctor would scarce enjoy having persons who took "606" through his persuasion return in a few months with an optic neuritis, choroiditis, or some incurable kidney lesion.

When a person takes "606," he assumes all consequences; for it is plainly stated that the final results of the remedy are unknown. Within another year, however, so many cases will have been treated that every possible phase of its action and every complication and sequela, if any, will be known.

From my own observation, the remedy is unquestionably the greatest drug in the treatment of syphilis, if it is not a positive cure for the disease.

Reasoning according to this conviction, I believe the effect of the powerful remedy is spent in its mortal combat with the treponema, the latter having the power, possibly, to render the compound innocuous, at the same time losing its own ability to work deadly effect on the human body, as manifested in the loathsome disease, syphilis. In this way can be explained the fact (which surprises every one who has observed the action of chemical) that it seems to exert no deleterious effect on the host. Thus, the conflict between parasites on the one hand and arseno-benzol on the other, occurring in the blood, I believe its action ends just there, leaving the viscera and the blood-vessels unscathed.

It has been suggested that, inasmuch as arterio-vascular changes and inflammation of nerve tissue have been known to occur under the action of preparations of arsenic—atoxyl,

for example—that it is quite natural to expect it with "606." The strongest opposition to this presumption is the fact that amidogen derivatives of basic substances, as we find in alkaloids, differ widely in their toxicity, morphine and codeine both being amidogen derivatives of the same plant and varying widely in their poisonous property.

Of those cases coming under my personal observation, some having been inoculated as long as six months ago, none showed untoward effects from the injection, notwithstanding they were examined daily.

Chemically, the remedy is dioxydiamidoarsenobenzol dihydrochloride—meaning that it is a double salt, formed from the benzine ring by replacing two hydrogen atoms with arsenic, two with the radical of amidogen (NH_2), and two with the hydroxol radical (OH). The drug occurs in its finished state as a yellow powder difficultly soluble in water, and put up in vacuum phials. It is easily oxidizable on exposure to the atmosphere, and when dissolved in water forms a highly acid solution. It is never given in this condition now, but is alkalized by the addition of solution of caustic soda, as will be stated later.

There are several methods of preparing the preparation for use, all of which are satisfactory if properly carried out. That of Alt is possibly the method most widely used, although Lesser, Wechselman, Junkerman and Kromayer have advanced modes of preparation which are often resorted to. Alt prepares the drug by dissolving it in ten c. c. of distilled water, the drug being triturated continually while the water is gradually added. Normal solution of caustic soda is now added by the drop method until the precipitate which is formed is almost re-dissolved. The small residue which is left is dissolved in distilled water and the latter added till the mixture measures twenty c. c. It is now tested to see that it is alkaline in reaction, and, in case it is not, normal solution of caustic soda is added until the solution is alkaline to litmus.

It may be well to mention here that phenylphthallin, which was largely used in the early days of the remedy, is no longer used as an indicator, the arseno-benzol rendering it inert and of no value for this purpose. When the preparation is ready for use, it is injected in two places, each injection containing 10 c. c.

SITE OF INJECTION.

Usually the injection is made into the upper part of each buttock, at a point corresponding to the obturator or thyroid foramen of the os innominatum. Often the region of the angle of the scapula is selected. I have never known of its use intra-muscularly except in these localities, but it occurs to me that the outer aspect of each thigh would be preferable to either.

My reason for this is that when the remedy is injected in the gluteal regions, the nerves arising from the sacral plexus and emerging from the pelvis by the various foramina are necessarily included in the pressure of the injected fluid. The consequent pain from this pressure is very severe and lasting, and a diagram describing the course of the nerves in this locality could easily be drawn on the patient's body by the points of pain complained of by him.

When it is injected into the scapula region, the pain follows the course of the nerves radiating from and crossing this region. Thus, the intercostals emerging from the cord between the dorsal vertebrae are especially painful, so that the overlying muscles and underlying pleura are sensitive from continuity, making respiration painful. When used in either of these localities, the ability to lie on the back is lost.

Formerly, when the preparation was used according to the method of Wechselman in which the drug was neutralized before injecting, the operation was painless but ineffectual, numerous relapses having been reported by physicians following his plan.

Now that the alkaline solution is used entirely, the dose is always very painful. Indeed, in some cases the pain is excruciating, resembling in its paroxysmal character and severity the rhymical pains of labor. This is one instance where men have the opportunity of experiencing pains closely allied to those borne by their parturient help-mates. If its use becomes general as it bids fair to do, I dare say there will be a correspondingly reduced number of labors, for when man knows what it means to bring forth child, he will forbear a gratification of having them. The pains of this character remain for from twelve to twenty-four hours, and almost invariably require morphia. They then assume a less

acute character but intermit with the same regularity, the interim between the paroxysms gradually lengthening, till at the end of the fourth or fifth day there remains only the exquisite tenderness to remind one that he has received what appears to be the most wonderful drug that science has produced, and the most valuable contribution to medicine during its history.

As soon as I have had the opportunity of observing the action of the remedy in several cases which have been recently injected, I will write a more detailed article in regard to it.

109 *East Grace Street.*

THE HYGIENE OF THE EYE AND THROAT OF PARTICULAR VALUE TO PARENTS.*

By C. R. DUFOUR, Phar. D., M. D., Washington, D. C.

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There is probably no one subject pertaining to the human body less understood than the eye, and it seems to be less understood how necessary it is to seek advice early from a skilled oculist when the eyes need attention. The oculist is a graduate of medicine who limits his practice to the eye. He must be thoroughly conversant with general diseases, for many of the eye conditions he is called upon to treat have their origin in organs of the body remote from the eye.

Perfect vision is rare, especially among those who live in large cities. Investigations which I have made, as well as those of other oculists, have proven this fact, that only one-fifth, or twenty per cent. of eyes examined, had perfect vision. Notice the number of persons you meet, wearing glasses. They are not old people; on the contrary, they are young, many of them children. You will be convinced by this that more persons have defective vision that you supposed, and that perfect eyesight is the exception, and not the rule. Neglect of the eyes in infancy or at an early age is often the cause of bad eyesight. They are more sensitive to light at that time than at mature age. Children are often taken out of doors with their little faces unprotected from the bright sunlight, or are allowed at night to stare at the gas or lamp light for hours. This is all wrong. The child's eyes should be protected from the glare of light of any kind. Should this be neglected, an early impairment of the vision may result.

There is a disease of the eyes incident to the first week of infancy, which causes over one-fourth of the blindness in the world, and, as a result of this fact, the government of the civilized nations expend millions of dollars annually for the maintenance of these unfortunate people.

This disease is very insidious in its approach. Most mothers suppose the baby has only taken cold, and often postpone consulting an oculist until great and often irreparable injury has been done. This is a disease that commences as an inflammation of the mucous membrane that lines the eye-lids, and, unless checked, will attack the cornea—the clear part of the eye—and partially or totally destroy vision. This disease can be cured by prompt and persistent treatment; therefore, upon the first sign of inflammation of the baby's eyes, an oculist should see him.

Children's eyes are often impaired by a dark schoolroom, where they are compelled to strain vision in using them; this is also the case from studying by artificial light. The position of the head while using the eyes has an effect upon them. The dependent position while leaning forward to read, together with the constant straining, frequently produces near-sightedness, which will increase as the child advances in his studies and keeps apace in the higher education of universities and colleges. Near-sightedness may be prevented by avoiding too long and close use of the eyes for near-work, and a proper arrangement of our schools as to illumination and the position of the desks and seats.

The position for reading or studying should be an erect one and the light allowed to fall on the book from over the left shoulder. Children will learn that by squinting (looking cross-eyed) they can improve defective vision. They will not squint constantly at first, but only when looking at near objects, and sometimes when looking at a distance. This is called periodic squint, and mostly begins about the fourth or fifth year when they are learning their letters, learning to spell, or when looking intently at objects when at play. This condition can often be corrected by the ad-

*Lecture delivered to the senior class of nurses at Georgetown University Hospital.

justment of proper glasses for each individual case. If this is not done, the vision of the crossed eye will become permanently impaired.

Another very annoying condition is diplopia (double vision), one object seeming as two, and is caused by weakness of one of the muscles of the eyes. The inconvenience and consequent troubles arising from this condition can be corrected by wearing proper glasses. They do not cure the insufficiency of the muscles, but change the rays of light as they enter the eye, and merge the two images into one. Often a surgical operation is necessary to effect a cure.

Abnormal vision has a great influence upon the general health, and in nervous affections is very great. Persons who have suffered for years with headaches have been cured of them and their health improved by proper treatment of their eyes. The nervous system is kept under constant strain by the continued efforts of the eye muscles endeavoring to secure perfect vision.

General character and disposition are also affected by imperfect eyesight, as it produces irritability of temper, melancholia, and often causes unpleasantness among acquaintances and friends from the inability to recognize them on the streets or thoroughfares, this failure of recognition being construed as an affront. A story is told of a very benevolent man who was quite near-sighted and who offended many of his friends by not speaking to them when he met them on the street, and, until the real cause was known, there existed considerable ill-feeling about it. He often spoke to persons he did not know, and once bowed very politely to a cow. I am frequently asked why so many persons wear glasses. In reply I would say, that the use and application of the different kinds of glasses is better understood now than formerly, the diseases are better understood and necessarily better treated, so that fewer persons loose their eyesight. The many labor-saving machines, such as the sewing mechine, typewriter, etc., the increased amount of reading, studying and literary work done, also the constant and close use of the eyes in most vocations, together with the decrease of illiteracy, and the use of the bright artificial lights, all tend to overtax the eyes and produce eye-strain. To prevent or remedy this after it has occurred, the eyes must be assisted in the great amount of work they have to perform, which is done by the adjustment of proper glasses. Many inflammations of the eye, such as red eye-lids, styes, also the eye lashes falling out, and small lumps forming on the lids, are, as a rule, caused by eye-strain. One or all of these symptoms may be present. There may or may not be headache; when the latter is present, and if due to eye-strain, it will be located either in the eyes, through the temples, or at the back of the head, the latter being a favorite spot for ocular headache.

Humanity in general has much for which to be thankful, and one of the boons for which we should express the most thanks is that we are able to restore the sight to those who were losing it or had it not, owing to some refractive error of the eyes. By the aid of glasses, the scholar can pursue his researches, the artisan his work; nature's beauties and wonders may be seen and enjoyed by those who without glasses could not have done so. By such aid, they can enjoy even to extreme old age one of our most valuable senses, viz., sight.

Another condition in children to which I wish to call attention is that of enlarged tonsils, those located in the throat being called faucial tonsils, and those located behind and above the posterior opening of the nasal cavity in what is known as the vault of the pharynx, being known as pharyngeal tonsils. These latter are commonly called adenoids when they are enlarged. Children having adenoids will be mouth-breathers, sleep with mouth open, will snore, the speech will be thick and muffled, and they will talk through the nose. The letter N will be pronounced as D, and M as B. Inflammation of nose and throat, and a discharge from the nose will be present. The child will catch cold easily. He will be pale, shallow chested, undeveloped, seemingly stupid, with dull cerebration. He will, as a rule, be unable to keep up in his studies, and is often deemed lazy and a dullard at school. The mouth is always open, the features assume the typical adenoid expression—an almost positive sign of this affection upon which a diagnosis can be made with nearly a certainty without further examination.

Adenoids cause ear-ache and discharging ears, during which condition the hearing is much impaired. They also cause the upper jaw to become narrow in front, which causes the vault of the mouth to become very narrow and the teeth to over-lap. This is the principal reason why so many young adults have to spend so much time with the dentist, to have the arch widened and the teeth straightened. Had the removal of the adenoids been done sooner, this would not have occurred.

I have explained to you the physical and mental effect upon children, due to the presence of adenoids. There is another phase of this disease to which I wish to call attention, namely, its effect upon the morals of children. I have investigated and examined a great many children, many of them backward and incorrigible, children who would not submit to discipline, would resent authority, in consequence of which they were finally brought before the juvenile court. Most of these children had enlarged tonsils and adenoids. These children were put on probation, and their parents advised to have the adenoids and tonsils removed. After I had removed them, they began to improve, and in from six months to a year were improved in every way, were amenable to discipline, their bad habits were corrected, and they bid fair to become good law-abiding citizens.

As soon as parents or those having children in charge notice symptoms indicating the presence of enlarged tonsils or of adenoids, an expert in such diseases should be consulted. The child must not be allowed to outgrow the disease, as the expression goes, for it would be disastrous to allow him to go on without the operation, which, if done properly, is void of danger. I have had parents bring their children from six to twelve months after I had operated upon them, for me to see the wonderful improvement they have made. From pale, puny, narrow-chested children, they have grown to be rosy-cheeked, full-chested, the pictures of health, their minds keen and alert, able to keep up in their studies, to breathe perfectly through the nose, and very much increased in weight.

Some of the pieces of tonsillar and adenoid tissue removed have contained the germs of tuberculosis, which would no doubt have entered the system had they not been removed. This is another strong argument for early removal.

It sometimes occurs that adenoids are present in adults, in which case they should be removed; this can be done under a local anesthetic, instead of a general one, as in the case with children.

When the faucial (throat) tonsils are enlarged, or diseased—for a tonsil can be diseased and not enlarged—and the person having them, be he adult or child, has attacks of tonsillitis, enlargement of the glands of the neck, or other conditions which are caused by diseased tonsils, the latter should be removed entirely. It is not sufficient to cut off just the top of the tonsil, as is often done, and call this removing them, for a stump of tonsil is left in the throat, which will continue to cause the diseases which the operation was intended to prevent or cure.

The crypts or small openings in the tonsils are usually filled with decomposing matter, cheesy in character, full of bacteria, and may be absorbed into the system, causing an auto-infection. From this arises many diseased conditions, such as stomach troubles, coated tongue, foul breath, debility, loss of appetite, anemia, cough, enlarged neck glands, kidney disease, etc. If the tonsil is entirely removed, this will, as a rule, render all of these troubles more remote.

The best time to remove tonsils and adenoids is in early childhood, but if it has not been done at that time, it should be done as soon as the evidence of diseased tonsils is discovered.

The removal of tonsils and adenoids should not be considered a trivial operation, though it is commonly void of danger. In my opinion the operation should be done only by an expert, a specialist in that kind of work, because he has made a special study of the operation, has special instruments, his technique is better, and he is better qualified to meet any emergency that might arise. It should not be done in the office unless it is specially fitted for operating; it should be done in a hospital, where proper sanitary precautions can be taken, and where the patient can be protected and safeguarded in case of the un-

foreseen happening. In the hospital with trained assistants, the operation is practically a safe one. It is not always necessary for the patient to remain in the hospital for longer than a day. After that time they may be removed home, where the physician can attend them until they have recovered. I frequently operate in the early afternoon and allow them to go home the same night, provided there is no sign of much bleeding. The hospital is beyond a doubt the safest and best place for the operation, and when this is explained to the parents, I find they rarely object to having it done there.

The tonsils of an adult might be removed in the office, because they are removed under a local anesthetic.

Finally, I would say that, in a practice of many years in these operations, I have never seen any ill-effects result from them; on the contrary, the results are usually beneficial.

1343 *L Street, N. W.*

A CASE OF DIVERTICULITIS OF THE SIGMOID.*

By W. LOWNDES PEPLE, M. D., Richmond, Va.
Assistant Professor of Clinical Surgery, University College of Medicine, Richmond, Va.

Mrs. S., aged 50, has four children, the youngest aged 23. Her menses stopped three years ago. Father died of some chronic bowel trouble, which lasted five or six years. The last year he spent in bed. Mother died of dropsy. There is no tuberculosis or cancer in the family history.

Personal History.—No serious illness except difficult and instrumental labor. Bowels always regular until three years ago, when she began having from six to ten actions a day, with much straining and bleeding. This has continued at intervals up to the present writing; and during this period of three years, her bowels have never been perfectly normal.

Fifteen months ago (October, 1907), she had an acute obstruction which lasted three days. The pain was intense. Enemas, purgatives and hot applications were used freely until relief came. Twelve months ago (January, 1908), she had a second attack of obstruction, similar to the first, which lasted two days. One month later (February, 1908), she noticed a lump in her side just internal to the left, anterior superior iliac spine. This increased in size for two or more weeks and culminated in a third attack of obstruction (February 22d). This was relieved by salts; and with the opening of the bowel, the lump subsided.

Seven months later (September, 1908), the lump reappeared, accompanied at first with much pain and tenderness. It soon subsided, however, and did not give a great deal of trouble until December 6th, about three weeks before I saw her. During this period of three weeks, she was confined to bed, was very thirsty and hot, though her temperature was not taken. She suffered greatly, had taken many purgatives and had been blistered and painted with iodine.

On admission to the hospital, December 26, 1908, her temperature was 102°, pulse 120, and she was suffering intensely. She was kept in bed several days, the temperature and pulse getting somewhat lower.

Examination.—A small, pale woman who had done much hard work, suffering with paroxysmal abdominal pain requiring morphine for relief. The abdomen is distended; tormina, accompanied by gurgling, the peristalsis plainly visible through the thin abdominal wallls. Abdomen is soft and pliable.

There is a hard, sharply-defined tumor the size of the fist, immovable fixed to the iliac wall its center opposite the anterior superior spine. It is quite tender, but does not fluctuate.

Rectal Examination.—Kelley's proctoscope was passed eighteen inches with very little resistance. Pain was so great as to make an examination by vision unsatisfactory.

The woman is not cachectic, nor is there an evident anemia.

Diagnosis (Tentative).—Carcinoma of the sigmoid with probable abscess formation about it.

Colostomy was advised.

Operation, January 1st.—Right rectus incision revealed the omentum glued to the parietal peritoneum: a large, smooth mass apparently behind the peritoneum firmly attached to the iliac wall; hollow of sacrum and lower pelvis normal. Stripping the omentum up toward the tumor, I broke into an abscess and evacuated from four to six ounces of foul-smelling, fecal pus. The general cavity had been well guarded with gauze; so after mopping

*Read before the Richmond Academy of Medicine and Surgery, October 24, 1910.

out the abscess, the linea incision was closed loosely, and a left McBurney was made close to the iliac crest directly into the abscess. Without any effort at breaking up adhesions, exploration or discovery, this wound was fitted with drains and the patient put to bed.

Subsequent Course.—The wound drained pus and fluid feces from the first. There was immediate relief of pain; and the lump rapidly subsided. The median wound suppurated, but never drained feces. The bowels moved daily, about half coming through the fistula and half through the rectum.

One day she discharged through the wound a body just the size, shape and color of half a seuppernong grape skin. It proved to be desiccated feces and was evidently a cast or mold of the diverticulum.

The patient began to improve in strength until she was able to be up and about in the room when, without apparent cause, she began to lose ground—grew rapidly weaker and weaker and died February 26th, fifty-six days after the operation.

I was unable to get an autopsy, but the whole picture may be taken as an illustration of a sigmoid diverticulum, which had undergone rupture, with abscess formation about it.

1000 *West Grace Street.*

Department Of Analyses, Selections, Etc.

Conducted By
MARK W. PEYSER, M. D., RICHMOND, VA.
Secretary Richmond Academy of Medicine and Surgery, etc.

The Therapeutics of Anterior Poliomyelitis.

While research laboratories are engaged in the study of anterior poliomyelitis from a bacteriological point of view, with the hope that a serum may be produced that may affect the disease, the question of the condition of disability resulting from infiltration of the spinal cord requires additional attention for removal of the resulting condition.

The onset of the disease is, in most cases so sudden, and the symptoms lacking in classic features which would point to an oncoming poliomyelitis, that it will be difficult to abort the condition before the actual damage is done, i. e., before the infiltration associated with the inflammatory process is instituted by the toxic element, together with the induction of undue pressure upon the central neurons. In other words, some other measure except the antitoxin, if the proper antitoxin *is* discovered, will be necessary to remove the infiltration which has occurred as a result of infection.

The employment in the past of the constant and interrupted currents and massage to the affected muscles should never have been considered except as a means of preventing atrophy and maintaining nutrition in the tissues: for it could not for any reason have been considered seriously that such peripheral administrations were capable of affecting the central lesion.

When it is said by the average orthopedist, as in a paper recently published, that "electricity is of no use in these cases," it is to be presumed that the writer has reference to these methods of treatment, and that he is unfamiliar with the use of the high potential currents. There are few neurologists or orthopedists who at present know or recognize static electricity as now systematically employed. They seem furthermore, not to be willing to investigate its often demonstrated effects in relieving local infiltration. To those who assume that they know, it is useless to attempt to demonstrate and useless, also, to request them to observe the results in a series of cases. One, however who is familiar with the use of static electricity in the treatment of anterior poliomyelitis has convincing evidence of its importance when the current has been properly applied.

There is abundant indication that the application of the static wave current with a narrow metal electrode over the spinal cord does relieve local infiltration and congestion in the cord and meninges. In the treatment of anterior poliomyelitis there are abundant results to verify such conclusion. In cases in which the lesion has been present without change for the better, during several months the restoration, though incomplete, is marked and progressive from its employment. In the early cases the application of this current with a long spark-gap (6 to 12 inches) for twenty minutes daily as described, will in most, if

not all cases restore the paralyzed parts by relieving the local conditions of pressure within the cord. That few neurologists now appreciate this fact is patent to the readers of current medical literature.

Prejudice or ignorance should not exclude the investigation or use of a measure which is absolutely harmless even if there may be doubt as to its doing good. Daily treatment for twenty minutes with the spinal electrode applied over the portion of the cord affected as indicated by the parts paralyzed, associated with the employment of radiant heat and light and mechanical vibration or an equally energetic massage over the paralyzed muscles is remarkably effective. Radiant light and mechanical vibration are far more effective in restoring and maintaining nutrition than the induced or the constant current, and far less disagreeable to administer.

In the early stages of the affection there is no physical measure more effective in drawing away the congestion and relieving the toxic symptoms of the patient than the employment of radiant light baths, or the application of the radiant light and heat with the high candle power lamp over the whole body of the patient, applied until the skin is hyperemic. The perspiration which takes place under these conditions effects the elimination largely of the toxins present, and coincidently improves the condition of the blood cells. It is to be deplored that so many of these little unfortunates are doomed to crippledom who might be so greatly relieved if not entirely cured, by a means so simple and free of danger as the static wave current and the other measures referred to.—(*Journal of Advanced Therapeutics*, December, 1910.)

Bacterial Therapy.

W. W. Root, Detroit, after giving the method of manufacturing vaccines and their standardization, discusses the comparative value of autogenous and stock products, and then goes into the subject of their indications.

Staphylococcus vaccine is administered as albus, aureus, citreus and combined, the last being the most popular. The preparation is indicated in the treatment of boils, carbuncles, osteomyelitis, psoas abscess, certain fistulae and chronic discharges, in secondary infections from cases of acne and, in general where a staphylococcus infection is present. A safe beginning dose contains 100,000,000 (*some authors advise* 50,000,000—italics ours.-P.) bacteria, to be raised at intervals of from four to eight days, as the resistance of the patient increases.

Streptococcus.—In localized forms of streptococcus infection the results have been most encouraging. It has also been used with marked success in certain cases of erysipelas sometimes combined with the anti-streptococcic serum. We should logically expect that it would be suitable in the treatment of scarlet fever, but the reports do not seem to fully support this assumption. (*Reports from Russia are the reverse of this*—italics ours.-P.) Acute rheumatism, if caused by the "diplococcus rheumaticus" of Payne and Boynton, should be amenable to this vaccine.

Gonococcus.—This has been used in some acute cases with success, but its value has been mostly shown in gonorrheal rheumatism, gleet and other chronic results of infection by the gonococcus. Dosage may begin with 5,000,000 and may run as high as 1,000,000,000.

Typhoid.—As a remedial agent, the value of this vaccine remains to be demonstrated, but as a prophylactic it has proven its value in the English South African campaign, in the American army and elsewhere.

Pneumococcus.—T. Leary, of Boston, has done work of value with this vaccine, but the outlook is, at present, not at all encouraging

Colon.—Good results have been reported from vaccines prepared from the bacillus coli communis in cases where this germ was the etiological factor.

R. W. Allen has given four different germs as causative organisms in 42 cases of nasal catarrh. He also states that of 50 cases in an epidemic of common colds which occurred early in 1909, 90 per cent. were due to the pneumococcus, either alone or complicated by the M. catarrhalis or M. paratetragenous or by both. In three cases, the B. influenzae was present, once alone, twice associated with the pneumococcus. "Common colds," which are usually a localized infection of the upper air

passages, have been shown by him to be amenable to vaccine therapy.

Bronchial asthma and pyemia have been successfully treated with vaccines.

These remedies are best given hypodermically in the side, back or upper arm. The dosage must be carefully adjusted to the particular patient as too large an injection may do serious harm.

Wright admits that he has "from the very outset recognized that vaccine therapy can in many cases be carried with success without its (the determination of the opsonic index) aid." The average busy physician has not the necessary technical skill, neither has he the time for such work, and while in some cases he may have access to a clinical laboratory this involves considerable additional expense so that, all things considered, he must, in the great majority of cases, do the best he can from a careful study of the clinical symptoms or resort to other treatment. The patient, not infrequently, can by his own feelings distinguish between the negative and positive phases.

The vaccine is always administered during a positive phase, the negative phase each time being less pronounced than before. The system is thus stimulated to an increased production of opsonins with increasing phagocytosis and consequent general and local improvement.

Bacterial therapy demands definite and exact diagnosis. It cannot be expected that a specific remedy will be of much service save in specific cases. The doctor must be sure, for instance, before using a streptococcus vaccine that streptococci are the invading organisms. (*Physiologic Therapeutics*, November, 1910).

Some Notes on the Treatment of Syphilis of the Nervous System by Mercurial Inhalations in a Thermo-Diaphoretic Room.

Salvator Schiro, New Orleans, states that he has had under treatment in the past five years, five cases of tabes in different stages, in which syphilis was, no doubt, the predominant etiologic factor. All had been previously treated by ingestion or inunction, some of them at Hot Springs; and one had been under various treatments and doctors for four years and a half, results in all being negative or of little or temporary value.

The author asks, how is it that anstisyphilitic remedies fail in parasyphilis? If the toxin is the result of syphilis, it seems as if it must be secreted by the organism of syphilis, or by the tissues affected by the poison of that organism. C. A. Mercier advances a plausible supposition that the poison is elaborated in some recess of the body difficult of access by the circulation. Carnevali thinks it is propable that the toxin is not eliminated or neutralized by the various depurative glandular organs (kidneys), whose functions may be impaired or deranged by the same cause.

It seems very likely that both these abnormal conditions may be present in parasyphilis and so hamper the therapeutic action of specific treatment. Recently, Dr. Pisani observed in many cases that while the Wasserman reaction was affected by mercurial treatment in syphilis, becoming sometimes negative, it was constantly found *positive* in parasyphilis.

In the five cases reported, mercury was given by inhalation in the thermo-diaphoretic room. It is well known that intense diaphoresis by heat or by other means, exerts an evident eliminating action on deleterious toxic substances, and that general, active hyperemia in a dry, hot atmosphere induces a more complete circulation in the capillary system, which is one of the most affected in syphilis especially of the nervous system. It must also be remembered that in this method mercury is largely absorbed through the respiratory apparatus and largely eliminated through the skin.

It would appear, then, on one hand that the elimination or neutralization of syphilotoxins is better accomplished by diaphoresis under the influence of the large absorption and elimination of mercury and, on the other hand, the intense general hyperemia would allow this remedy to reach more thoroughly the diseased tissues, or those lesions otherwise not accessible to the same.

The above considerations and the clinical results in the five cases reported lead to the following conclusions:

1. Mercury is a specific not only in the classic

manifestations of syphilis, but even so in late syphilitic affections of the so-called parasyphilis.

2. Diaphoresis combined with mercurial inhalations is not only a valuable means of eliminating toxins, but reinforces the specific action of mercury.

3. This method is to be tried before declaring that specific treatment is powerless only because other methods failed.

4. It is a method of special indication in severe or impending syphilis of the nervous system.

5. It is a method of preference because it does not disturb the digestive organs, and it is of no discomfort.

6. An early diagnosis of tabes and an early energetic specific treatment may save the patients from the moral and physical sufferings of such a chronic and obstinate disease.—(*New Orleans Medical and Surgical Journal*, January, 1911).

Book Notices.

Physician's Pocket Account Book. BY J. J. TAYLOR, M. D. Published by The Medical Council, 4105 Walnut St., Philadelphia, Pa. 212 pages. Flexible leather. Price, $1. postpaid.

An especial feature of this book is that each patient's account is complete on one page, so that statements may be rendered each month without the work of "posting," and a number of blank pages are given for indexing these accounts. The disadvantage of this plan, however, is that it does not afford a convenient memoranda of the patients to be seen daily by the physician. Its preface gives many practical directions to the physcian in a business and legal way as to fees, billing and collecting, statute of limitation of bills, as well as treatments in cases of poisoning, various tables for medical matters, etc.

An enlarged desk size of 400 pages may be had at $5 per copy.

The Physicians' Visiting List For 1911.

This popular, pocket-sized book, now entering upon its sixtieth year of publication, is bound in flexible leather, and contains flap, pocket and pencil. The blank pages are prefaced by 24 pages of text replete with such information as is of almost daily need to the practitioner—calendar for two years in advance, lists of incompatibles, antidotes for poisons, metric table of weights and measures, as well as others in common usage, dose table of considerable length in accordance with the new U. S. Pharmacopeia, and treatment for asphyxia and apnea. In addition to the blank pages for the visiting list of 25 patients a week, there are a number of memoranda pages indicated for various purposes. This book will be sent postpaid by the publishers, P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, Pa., upon receipt of $1.25. It may also be had in various sizes up to $2.50 a copy.

The Practitioner's List For 1911,

Published by Lea & Febiger, Publishers, Philadelphia and New York, is a pocket-sized book, bound in flexible leather, with flap, pocket, pencil, and calendar for two years. It enters upon its twenty-seventh year in four styles known as the Weekly, Monthly, 30-patient and 60-patient Perpetual. The last named contains only blank pages, while the three former have 32 pages of information for the practitioner, such as tables of weights and measures in the ordinary and metric systems, table of doses in accordance with the new U. S. Pharmacopeia, notes on examination of urine, eruptive fevers, ligation of arteries, incompatibles, antidotes for poisons, and quite an extensive table of therapeutic reminders. The usual blank pages are given for the daily record, etc. Price, postpaid to any address, $1.25. Thumb letter index, 25 cents extra.

Editorial.

New Secretary for the Medical Society of Virginia.

Members of the Executive Council of the Medical Society of Virginia met in the office of Dr. Edward McGuire, Richmond December 29, 1910, and upon nomination by Dr. Carrington, Dr. Paulus A. Irving, of Farmville, was appointed Secretary, to fill the vacancy in this office created by the death of Dr. Landon B. Edwards.

In the absence of Dr. S. A. Hinton, of Pe-

tersburg, Chairman of the Council, Dr. O. C. Wright, of Jarratt, President of the Society and *ex-officio* member, presided. The members of the Council in attendance were Drs. C. P. Jones, E. E. Feild, A. L. Gray, James S. Irvin, S. S. Gale, Hunter H. McGuire, R. S. Griffith, C. V. Carrington and Edward McGuire.

In this connection, we wish to say, as already stated to the President and Secretary, that at any time the *Semi-Monthly* may be of service to any official or member of the Medical Society of Virginia, in advancing its interests or that of the profession at large, or as a medium of communication between members, it will be our pleasure to assist, and to tender the pages of this journal for such purposes.

The Virginia State Board of Health

Held its semi-annual session in Richmond, January 4, 1911, with the following members in attendance: Dr. Rawley W. Martin, President; Dr. Wm. M. Smith, Secretary, and Drs. J. H. Dunkley, T. C. Firebaugh, John B. Fisher, Stanley H. Graves, Lewis E Harvie, S. W. Hobson, Geo. Ben. Johnston and O. C. Wright.

The reports read from the various bureaus of the Health Department were most gratifying, and showed a marked reduction in the number of cases of most of the dreaded diseases which have been especially fought by the Department. If a law requiring the registration of vital statistics should be required, it is believed even better results might be obtained. Indications would seem to point to the fact that physicians in general are showing a greater interest in and placing a better value on the work done by all branches of the Health Department.

In the report from Catawba Sanatorium it was announced that all the buildings had been completed, and that the cost had been kept within the appropriations.

The National Confederation of State Medical Examining and Licensing Boards

Will hold its twenty-first annual meeting in Chicago, Ill., February 28, at the Congress Hotel. Subjects of practical and vital interest to medical colleges, medical examining boards, the profession and the public, will be discussed. The chief object of the Symposium, which will be composed of ten papers on State Control of Medical Colleges, is to determine the feasibility of placing Medical Colleges under State Control.

All interested in medical education are cordially invited to attend the meeting. Dr. J. C. Guernsey, of Philadelphia, Pa., is President, and Dr. George H. Matson, of Columbus, O., Secretary-Treasurer of the Confederation.

In mentioning the subject for the Symposium, though we are not familiar with the plans of State control to be proposed, we do not believe such a proposition should be too hurriedly adopted. Centralization of power in medical matters is a thing that cannot be pushed too far without danger of creating factions, which engender a spirit of antagonism harmful to the best interests of the profession and the State.

The Tri-State Medical Association of the Carolinas and Virginia.

Preliminary announcement has been made of the thirteenth annual session of the Tri-State Medical Association at Raleigh, N. C., February 22 and 23, under the presidency of Dr. Joseph A. White, of Richmond, Va. As usual an attractive program will be provided, and members are urged to attend, and persuade professional friends to accompany them. The secretary-treasurer, Dr. J. Howell Way, of Waynesville, N. C., will be glad to furnish additional information.

Public Health Lectures in Richmond, Va.

Following up the introductory lecture given the Richmond Public in December, by Prof. C. E. A. Winslow, of New York, Dr. E. C. Levy, Chief Health Officer of Richmond, gave a talk January 5th, on "What Diseases Can Be Prevented and How."

These talks, illustrated with stereopticon views, will be continued on the first and third Thursday evenings of each month during the winter season, under the auspices of the Health Department and the Federation of Mothers' Clubs, with the following program:

January 19—"Hygienic Management of Nervous Children," Dr. Beverly R. Tucker.

February 2—"The Relation of Flies, Mosquitoes and Other Insects to Public Health," Dr. Allen W. Freeman.

February 16—"The Cause and Prevention of Common Colds," Dr. Frank M. Reade.

March 2—"Medical Inspection of School Children," Dr. McGuire Newton.

This course of lectures may be augmented by additional talks if practicable.

A Physician's Pocket Reference to Causes of Death

Has been prepared by Dr. Cressy L. Wilbur, Chief Statistician of the United States Census Bureau, with the hope of securing a better registration of deaths as well as births throughout this country. The United States is far behind other leading countries of the world in these registrations, and especially is this so in the registration of births. This deficiency can only be overcome by the interest and support of the medical profession as a whole, who should lend their aid in overcoming the loss thus caused the government, as well as in repairing the wrong which non-registration may mean to the child in future years.

Reference leaflets and the revised death and registration certificates may be obtained upon request to the Census Bureau, Washington, D. C.

Lepers Exhibited at Physicians' Meeting.

An unusual and interesting feature of one of the December meetings of the New York Academy of Medicine was the exhibition of nine cases of leprosy from neighboring hospitals, with a thorough discussion of the disease by several physicians from all parts of the United States and the American colonies. One of the purposes of the exhibition was to educate the public against needless avoidance of the leper, which causes him to conceal his sufferings, instead of applying for and receiving intelligent treatment.

New York, South Carolina, Florida, California and Massachusetts—Seaboard States—are said to contain nearly all of the 278 recorded cases in the United States.

A Cash Prize of $100 is Offered

By the American Proctologic Society for the best original essay on any disease of the colon, by a graduate of, or senior student in any medical college of the United States or Canada, who is not a fellow of that Society. Essays must be submitted under a *nom de plume* to the Secretary of the Society, Dr. Lewis H. Adler, 1610 Arch St., Philadelphia, Pa., on or before May 10, 1911. The committee in charge reserves the right to make no award if no essay submitted is considered worthy of the prize. The prize essay, if any, will be kept as the property of the Society. The object of this contest is to stimulate an increased interest in, and knowledge of Proctology.

For further information, address the Secretary as above.

Vaccination for Typhoid Fever.

The Surgeon-General of the Navy, in his annual report for 1910, announces that English, German and American military statistics and experiences would indicate the advisability of adopting vaccination against typhoid fever as well as smallpox, as it "promises important even if less certain protection * * *." It is suggested, however, that further observations should probably be made before compulsory vaccination of all men and officers in the service is required.

With the exception of a slight rise of temperature, no ill effects are experienced from injection of the vaccine, which has to be used two or three times, at intervals of about a week.

The U. S. Civil Service Commission

Announces an examination January 21, 1911, to secure eligibles from which to make certification to fill a vacancy in the position of physical director and assistant disciplinarian at $800 a year, at the Haskell Institute, Kansas, and vacancies requiring similar qualifications, as they may occur in the Indian service. Applicants should be men, graduates in medicine, and between the ages of twenty and fifty. The eligibility of competitors will be determined not by examination at any special place, but upon evidence furnished in application and examination form, which may be obtained from the above Commission, Washington, D. C.

Tuberculosis Catechism.

Realizing that tuberculosis education, to produce the best results in the prevention of this disease, should, like other education, begin in childhood, the Virginia Department of Health and the State Anti-Tuberculosis Association have jointly prepared a Tuberculosis Catechism, which was issued in the Virginia Health Bulletin for December. It is recommended and should be adopted for use in the primary departments of public and primary schools throughout the State.

The Virginia Association of Graduate Nurses

Will hold its annual meeting at Murphy's Hotel, Richmond, January 30 and 31, and February 1. Addresses on subjects in connection with the work of nursing are expected to be given by members as well as by visitors from other States. Miss Ethel Smith, of Norfolk, Va., is President of the Association, and Miss Anne Gulley, of Richmond, Secretary.

The State Board of Pharmacy of Virginia

Met for its winter examinations at the Medical College of Virginia, Richmond, January third. Forty-five applicants appeared before the Board—thirty-three for the degree of registered pharmacist, and twelve for that of registered assistant pharmacist.

The American Society of Tropical Medicine

Will hold its eighth annual meeting in New Orleans, May 18-19, 1911. The Secretary, Dr. John. M. Swan, The Glen Springs, Watkins, N. Y., wishes to receive titles of papers to be presented as promptly as possible..

Books for Catawba Sanatorium.

Owing to the fact that the State Library Board of Virginia has decided that it has no authority to furnish books to patients at the Catawba Sanatorium for Consumptives, some friends of that institution have decided to ask those interested in the sanatorium to make donations, from time to time, of good, helpful books for the entertainment and amusement of its patients. Contributions should be sent to the State Health Department, 1110 Capitol Street, Richmond, Va., or the Sanatorium, Catawba, Va.

The Montreal Medical Journal,

With its December issue, discontinued publication under the old regime, to become the official organ of the recently re-organized Canadian Medical Association, in which the proprietors of the journal hold some of the principal offices. The Association proposes to extend its membership so as to include, as far as possible, every medical practitioner in the Dominion of Canada, and the idea of the proprietors in discontinuing their journal is merely to co-operate with, and assist the new publication. Dr. Andrew Macphail is to be editor.

Physiologic Therapeutics,

One of the new journals on this subject, celebrates the New Year with a Special Double Number of unusual interest. Those of our readers who desire a copy should at once send postal request to the editor, Dr. Henry R. Harrower, Park Ridge, Ill.

Obituary Record.

Dr. John Spottswood Wellford,

One of the most prominent physicians and highly-esteemed citizens of Richmond, Va., died at his home in that city, January 2, 1911, after an illness of short duration. He was born in Fredericksburg, Va., January 4, 1825, and had he lived two days longer would have celebrated his eighty-sixth birthday. After the usual primary education, he entered the University of Virginia, and afterwards the University of Pennsylvania, from which he graduated in medicine in 1846. He then took up the practice of his profession in Richmond, where he was for more than fifty years prominently identified with medical matters. In 1859 he married Miss Emeline

Tabb, of Gloucester county, Va., who survives him.

At the beginning of the war between the States, he joined the Confederate States Army, and was first attached to the brigade of Gen. L. L. Armistead; later he was transferred and detailed as Chief of the Hospital Corps of General "Stonewall" Jackson's brigade. He served with distinction during the war, after which he resumed his professional work in Richmond.

Dr. Wellford was professor of Diseases of Women and Children at the Medical College of Virginia for a number of years, being made Emeritus Professor of this chair when he retired from active work. He was one of the founders and a charter member of the Medical Society of Virginia, and one of its vice-presidents in 1870, and was made an honorary member in 1897. He was a member and ex-president of the Richmond Academy of Medicine and Surgery, as well as of other local and Confederate organizations.

Resolutions on Death of Dr. John Spottswood Wellford.

The Richmond Academy of Medicine and Surgery has learned with sorrow of the death of our friend and fellow, Dr. J. S. Wellford, a man who by his great culture, high ideals and standard of ethical conduct, reflected credit on the medical profession which he adorned. Always loyal to duty as he saw it, with a moral courage which always made him stand firmly for the right, earnest in the pursuit of his calling, devoting his life to the good of humanity and of a simple and unaffected piety, he has left to us the example of a long and well spent life which we would do well to emulate.

Therefore, Resolved, That in the death of Dr. Wellford the profession of the city and State has lost one of its most brilliant members.

Resolved, That we extend to his widow and family our most sincere sympathy in this their great sorrow.

Resolved, That we attend his funeral in a body.

Resolved, That a copy of these resolutions be spread upon the minutes of the Academy, a copy sent to his family and published in the medical journals and daily papers of this city.

J. N. Upshur,
Jacob Michaux,
Wm. S. Gordon,
Committee.

Honor the Memory of Dr. Wellford.

The following resolutions were passed by the faculty of the Medical College of Virginia, who also attended Dr. Wellford's funeral in a body:

Whereas, an allwise Providence has removed from our midst Dr. John Spottswood Wellford, who for many years was professor in the Medical College of Virginia and held successively the chairs of materia medica and therapeutics and of diseases of women and children, we, the faculty of the Medical College of Virginia, in meeting assembled, resolve as follows:

First. That we extend to his bereaved wife our heartfelt sympathy in her hour of affliction.

Second. That in his many years of association with this college as teacher, his broad learning, extensive experience, human sympathy and kindly manner were an inspiration to the long series of students who sat at his feet, many of whom are now teachers in the school in which he taught.

Third. That his loyalty to the College, high ideals of honor, and unflinching courage have been an inspiration to his co-workers in the faculty.

Fourth. That these resolutions be spread upon the minutes and published in the daily papers and a copy sent to his bereaved family.

Dr. Edwin Lacy Gibson,

Who died at his home in Staunton, Va., January the sixth, was born in Waynesboro, Va., about forty-two years ago, and was a son of the late Dr. J. St. P. Gibson, of Staunton. He was educated at the University of Virginia and the University of Maryland, graduating from the latter place in 1894. He became a member of the Medical Society of Virginia in 1902, and was prominently identified with the professional and social life of his section, being one of the best-known general practitioners in Staunton. He is survived by his widow and small son.

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Original Communications.

ON THE TREATMENT OF SOME OF THE FORMS OF CARDIAC FAILURE.*

By L. F. BARKER, M. D., Baltimore, Md.
Professor of Medicine, Johns Hopkins University.
and Physician-in-Chief, Johns Hopkins Hospital.

Diseases of the heart form a considerable proportion of the pathological states with which every practising physician has to deal. These diseases are far more prevalent than they should be, and in a few years from now it is fair to believe that the incidence will be much less than at present. Medical men have begun to find out the causes of vulvular disease of the heart and of other forms of chronic heart disorder, and, fortunately, this new knowledge permits them to do a vast deal in the way of prevention.

To cite a single instance: there can no longer be any doubt that a large percentage of the cases of endocarditis which occur among our people are to be regarded as secondary metastatic infections following upon an acute inflammation of the tonsils. Until this was known, acute tonsillitis was often regarded as a more or less insignificant affair. Now that we realize the danger the individual infected runs of suffering from a complicating arthritis and endocarditis, it is the duty of every practitioner to look upon acute tonsillitis as a serious disease. If every patient at the onset of an acute tonsillitis were placed in bed and kept there on a light diet until two or three days after the temperature has become normal, there would be, I am convinced, a great reduction in the number of cases of endocarditis and polyarthritis. Even after one attack of polyarthritis or endocarditis, if the lesions be slight and if the patient has shown a tendency to recurring attacks of tonsillitis, his joints and the lining membrane of his heart can often be protected from further injury by rational treatment of the tonsils. Though tonsils are dissected out occasionally unnecessarily, I believe that there is a real justfication for the increased interest that physicians have taken during the past few years in the removal of this portal of entry when once the germs have been known to pass through and to infect the endocardium or the synovial membranes.

It has seemed to me that I could choose no more interesting topic for the short address which it is my privilege to make before you today than that which has been announced; namely, the Treatment of Certain Forms of Cardiac Failure. I have been warned against inflicting upon you a paper too technical to be interesting or too academic to be of value to the general practitioner. There is a general feeling, I think, that teachers in medical schools, accustomed to the didactic work of the schools, tend, on addressing medical societies, to lose sight of the differences in need between the members of the one audience and those of the other. I am bearing this fact in mind to-day and trust that what I shall have to say regarding the therapy of certain forms of circulatory insufficiency may not only appeal to your interest, but perhaps give rise to a discussion which will elicit from some of you statements regarding your own successes or your own difficulties in the management of similar cases.

It would obviously be impossible in a short address to discuss the treatment of all the forms of cardiac failure which confront the practicing physician, but the general principles may be sufficiently well illustrated, I believe, by a consideration of a few types. The types which I have chosen include:—

1. Cardiac failure in the chronic cardiop-

*An address delivered before the Medical Society of Virginia at its forty-first annual session at Norfolk, October 25-28, 1910.

athies of inflammatory origin, including the valvular diseases of the heart resulting from endocarditis and the scleroses of the heart following upon myocarditis.

2. The diseases of the heart dependent upon changes in the blood vessels or the so-called athero-sclerotic cardiopathies.

3. The heart in obesity, or the so-called fatty cardiopathies.

4. The heart in chronic nephritis, or the so-called nephritic cardiopathy.

5. The heart of exophthalmic goitre, or the so-called thyreotoxic cardiopathy.

I. CARDIAC FAILURE IN THE CHRONIC CARDIOPATHIES OF INFLAMMATORY ORIGIN.

Among the chronic cardiopathies of inflammatory origin we must include those resulting from acute endocarditis (either the simple vegetative or the septic ulcerative form), and those following upon acute myocarditis, (parenchymatous, interstitial, rheumatic and syphilitic forms), and the forms of chronic heart disease following upon pericarditis with adhesions. Time will not permit me to enter into the pathology or even into the diagnosis of these conditions. I shall content myself with the discussion of therapy, and even this discussion must of necessity be limited rather to a consideration of general principles than to the setting out of details.

It seems wise to begin with the management of cardiac insufficiency in the group just mentioned, since the principles here can be applied with only slight modification to the other forms of chronic cardiopathy to be mentioned later.

As long as internal medicine was so dominated by the ideas of pathological anatomy which followed the brilliant work of Rokitansky, Virchow and others, a tendency to therapeutic nihilism prevailed. The eyes of physicians were so glued upon the anatomical lesions in mitral stenosis, in aortic insufficiency and in adhesive pericarditis that they failed to see distinctly the possibilities of function of the heart muscle. "Here is a button-hole stenosis of the mitral valve," said the pathologist; "you clinicians have no way of removing fibrous tissue once it is formed. Why should you hope to cure mitral stenosis unless by surgical operation?" In so far the pathologist was right, but the question was wrongly placed. The duty of the physician in such a case is not to cure the mitral stenosis but to make the circulation as efficient as is possible when a mitral stenosis exists.

After pathological anatomy had had its great up-swing physiological researches began to come into their own, and, as a consequence of this, we who now work in internal medicine have gradually come to learn the enormous significance of the heart muscle for the maintenance of the circulation, even after the valves are seriously and incurably diseased. It was soon found that with regulation of the mode of life so as to avoid over-strain of the heart muscle, and by the maintenance of a regime that would keep the tasks which the heart muscle has to perform as much as possible within its powers, patients with serious organic disease of the valves of the heart and of the pericardium might live long lives of comparative comfort and of fairly good health.

Though we may now be said to be in an era of therapeutic optimism as regards the treatment of the various forms of cardiopathy, this optimism would be blind if it did not admit that in certain instances there is but little therapeutically to be accomplished. Even the physiologically trained is forced to recognize that, when so much heart muscle has been destroyed that there is no longer enough to respond to therapeutic measures, there is nothing to be hoped, nor will he dare, in those cases of angina pectoris where he has good reason to believe that extensive coronary sclerosis already exists, be too optimistic in his prognosis. But what he has learned is this, that the vast majority of patients suffering from valvular disease of the heart, though the myocardium has participated to a greater or less extent in the inflammatory process, still possess a sufficiently good heart muscle to carry them through long years of bodily and mental activity if wisdom and judgment be exercised in the ordering of their lives. The one point, if I can succeed in impressing one upon this audience, which I should like to leave uppermost in your minds regarding the treatment of the various forms of cardiac failure is this, that it is above all the condition and needs of the cardiac muscle at the time when therapy intervenes, which we have in every case to consider.

The functions of the cardiac muscle are by no means simple, but, thanks to physiological

researches, they are gradually being unravelled. We now know of at least five or six distinguishable functions, and among them I may mention:

1. The power of the heart muscle to initiate rhythmical contractions, the automatic rate per minute varying for the different parts of the heart (so-called chronotropic function).

2. The function of excitability, or bathmotropic function, which we now measure so satisfactorily by means of electrocardiographic studies.

3. The power of the heart muscle to conduct impulses at a slower or faster rate (so-called dromotropic function), of great importance in the explanation of the origin of certain forms of cardiac irregularity.

4. The power of contractility of the heart muscle (so-called inotropic function), markedly injured, for example, in cases in which the pulsus alternans exists.

5. The function of tonicity which stands in such intimate relation to the size of the cavities of the heart.

In our clinical work it is desirable to think of the heart, however, not as an organ by itself, but as a part of the great circulatory system, subserving the general functions of the metabolism of the body. In the last analysis the function of the heart, as a pump for the blood, lies in making possible the interchanges among the various cells of the body, in providing them with proper intake and relieving them of the waste products of their chemical activities. The size of the heart stands, other things being equal, in direct relation to the grade of metabolism; this is why the athlete's heart is larger than the heart of the sedentary man. A considerable proportion of the disturbances which permit us to recognize a beginning cardiac insufficiency consists of symptoms due to interference with the normal metabolism of the body, owing to the faults of circulation; the clinician who keeps this fact in mind has the clue to the interpretation of some of the disorders met with when the heart begins to fail which would otherwise be unintelligible to him.

It is fundamental in studying cardiac disease to keep constantly in mind the work which the heart has to do. The work done by the left heart can be roughly estimated by the consideration of two factors; first, the amount of blood thrown out by the left ventricle at each beat of the heart (so-called systolic output); and, second, the resistance opposed to the outflow of blood through the arteries. Now in valvular disease of the heart, the heart muscle is continuously over-worked, either as a whole or in the walls of certain of the chambers, and the over-worked parts enlarge or hypertrophy. In aortic insufficiency, for example, there is first dilatation of the left ventricle, then hypertrophy of its walls; later on, especially if the myocardium of the left ventricle be diseased, there will be further dilatation followed by dilatation of the left auricle. The latter change will lead to increased pressure in the pulmonary circulation, which will give the muscle of the right ventricle more work to do and the latter will hypertrophy. As long as the heart muscle itself is but little diseased the compensation may remain good, but sooner or later the demands upon this heart muscle, especially if the original endocarditis has been associated with a myocarditis, will become too great to be met and signs of cardiac insufficiency will develop. There may be a sudden break in compensation or there may be a slowly developing cardiac insufficiency. The mitral ring may dilate and give rise to a relative mitral insufficiency associated with cyanosis and dyspnea, and still later, as the tricuspid ring dilates, a relative tricuspid insufficiency will develop, followed by general venous stasis and the appearance of dropsy of the serous cavities and general anasarca.

The compensating factors in valvular disease of the heart are in the main muscular factors and failing compensation (or decompensation) means failing cardiac muscle.

It must be clear then that a recognition of the importance of the muscular power of the heart is, as Stokes long ago pointed out, the very essence of the therapy of cardiac disease. If this be true the physician who wishes successfully to treat cardiac cases must acquire skill not only in the diagnosis of the anatomical conditions present in the heart and blood vessels, but, and more especially, in forming judgments as to the functional efficiency of the heart muscle and as to the exact grade of muscular insufficiency which exists at any given time.

While the more advanced stages of cardiac insufficiency are recognizable by everyone, even by the third year medical student, the early

stages of insufficiency, the first beginnings of failure of the heart muscle, are difficult to recognize: yet, it is just at this period that the changes should be detected, since this is the time when treatment can be instituted with the surest prospect of success.

If we see a patient sitting up in bed and panting for breath, the lips cyanotic, the veins of his neck enormously swollen, his apex beat in his axilla, with great swelling of the ankles and ascites, the urine scanty and loaded with protein and casts, the blood pressure falling and the temperature low, there can be no question of the existence of an advanced grade of cardiac insufficiency.

But, if we see a patient for the first time in bed, without marked cyanosis, without enlargement of the veins of the neck, without dyspnea, without dropsy or albuminuria, we might not suspect the existence of a beginning cardiac insufficiency though careful study may later reveal it.

Many authors describe two grades of cardiac insufficiency. In the "first grade" the insufficiency phenomena disappear when the patient is kept at rest, while in the "second or severe grade" these insufficiency phenomena persist even when the patient is at rest. Obviously this is a very gross classification and much finer judgments are required in therapeutic work. The criteria for such finer judgments are, however, difficult to give, and long experience with careful valuation of all the circulatory phenomena is needed to make one's judgment sound. As I said before, time will not permit me to go into the refinements of diagnosis so important in estimating the various stages in the milder grades of cardiac insufficiency. Instead, I must be content to consider the general principles of maintaining compensation and of restoring it once decompensation, no matter how slight, has set in. As regards the heart itself, we have to do all that we can to increase its power, at the same time taking care to make the work which it has to do minimal for a time. Therapeutically we are able definitely to intervene in the functional activity of a patient's heart, since we are now well acquainted with methods which permit us, first, to influence markedly the force and frequency of the heart beat, and second, to vary the constriction or dilatation of the peripheral arteries.

The distinguished therapeutist, Hoffman, has shown us the importance in the treatment of cardiac cases of keeping always before us two main principles: (1) the principle of protection of the heart; and (2), the principle of its exertion. Our therapy in cardiac cases is much simplified, if after a careful study of the case we try to make up our minds in how far we can apply one and in how far the other principle with advantage. One form of cardiac failure may require protection; another form may be benefited by exertion. The failing heart of obesity, for example, often requires an entirely different treatment from that of the failing heart in acute endocarditis or acute myocarditis of infectious origin. The physician should regard, therefore, every cardio-vascular patient presented to him as a problem *per se*. Much harm is done if one resorts to any routine or schematic method in cardiac cases; indeed, nowhere in the practice of medicine is the principle of individualization of the therapy more necessary than in the treatment of patients suffering from disease of the heart and vessels. No two patients are exactly alike and the particular needs, the individual peculiarities, the specific forms of reaction to stimuli, the individual mode of life, must be fully inquired into and an effort made adequately to value the data thus obtained.

To turn now more directly to the treatment of beginning failure of the heart muscle in chronic valvular disease and in chronic myocarditis, let us see how we may apply both of the principles above referred to, that of protection and that of exertion. Our aim will be to strengthen the heart muscle so as to make it equal to the work before it, and while doing so to protect it from any over-exertion.

It is not possible, as far as we know, to increase the number of muscle fibres in the heart so as to replace any of those injured by the disease process, but we can do a good deal to increase the size of the individual fibres that remain healthy and especially to improve the function of tonicity in these fibres.

Applying the principle of protection first, we make the work of the heart and of the circulation generally lighter by giving a suitable diet, imposing bodily and mental rest, and, if the cardiac failure has gone so far as to result in edema and dropsy, by getting rid of

these. On the other hand, we apply the principle of exertion by using measures which excite the heart muscle to more powerful contractions. The three most important of these measures are: (1) the exhibition of certain drugs; (2) the stimulation of the skin by carbon-dioxide baths; and (3) the systematic passive and active exercise of the body muscles, most carefully controlled.

In using a diet which will lessen the work that the heart has to do one must take care not to make it such that the heart muscle comes to be improperly nourished thereby. We should use a nutritious diet, but one which will give the digestive organs relatively little work to do. My experience has proven to me how beneficial the substitution of five small meals for three large ones can be in the treatment of cardiac patients. If these five small meals are so constituted that the foods given are easily digested and absorbed, and if the total amount of fluid given to the patient be limited to one and one-half litres in the twenty-four hours the patients will have sufficient food and drink, and yet very little strain will be thrown upon the heart by the digestive processes. I am surprised to find how often it is necessary to educate patients in the simple matters of quiet, restfulness, leisure and thorough mastication in connection with their meals. The rational proportioning of protein, carbohydrate and fat has always to be attended to, especially where the diet is rather strictly limited as it has sometimes to be in these cardiac cases. So often one finds a patient left to himself indulging in either protein or carbohydrate excess at the expense of the other constituents required. Stout patients with valvular disease are sometimes much benefited by a very cautious and gradual reduction of the body-weight, while the undernourished patient may do better when his weight is increased. Having decided upon decreasing, increasing or simply maintaining a given weight, one does best to proceed by putting the patient upon a diet of a known number of calories and controlling his progress by accurate weekly weighings.

Only in a few selected and severe cases, especially of myocardial disease without valvular lesion, has it seemed to me desirable to resort to the very limited milk cure of Karrel, but in certain instances with modifications (addition of nutrose; administration of strophanthin) of his method I have observed truly remarkable results.

The cardiac patient should take his main meal in the middle of the day. He should always avoid over-filling the stomach at the evening meal, and it is a good rule to give this last meal at least three hours before bed-time.

A little more fluid can be allowed in cases of aortic insufficiency than in cases of mitral stenosis or aortic stenosis, for the heart in reality does rather better work in the former disease when a slight plethora exists.

The diet should contain plenty of stewed fruit in order to help in combating constipation, so harmful to the cardiac patient. Salt should be restricted especially when edema exists.

As to the use of coffee, tea, and alcohol, much depends upon the individual patient and upon his time of life. Older people are frequently benefited by small quantities of alcohol given twice a day but young and middle-aged people are usually better without any. Very weak tea in small quantities is fairly well borne, but coffee very frequently increases palpitation and has to be avoided altogether, though coffee freed from its caffeine may be made very palatable and is appreciated by some patients. Tobacco I find it better to interdict altogether except in stages when the compensation is excellent; even then the quantity used should be very small.

At the very beginning of treatment of an insufficient heart muscle I have found in many cases great benefit from ordering the patient to lie in bed and to take every two hours of the day a few ounces of milk and absolutely nothing else for five or six days. After this time a light diet of five small meals per day is resumed.

The importance of rest of both body and mind can scarcely be over-emphasized by one who attempts to write upon the treatment of the insufficient heart muscle. If I were to be limited to any one single method of treating cardiac cases to the exclusion of all others, I should unhesitatingly choose rest in bed as that offering in the majority of cases the greatest advantages.

In the severer forms of cardiac failure the rest in bed should be complete for a long period and visits of outsiders should be interdicted and even those of the family strictly limited. Reading and writing should be prohibited until the patient has advanced toward convalescence. I feel sure that one of the reasons why cardiac patients often do well in hospitals when they have failed to respond to ordinary measures outside lies in the fact of the bodily and mental rest which the hospital has yielded and which the home did not afford.

When patients are short of breath it is wise to allow them to assume the position in bed in which they are most comfortable. Some patients will assert that they cannot stay in bed, but a skilful nurse, accustomed to the various accessories of the modern hospital for making patients comfortable, can usually convince the patient of the possibility of greater comfort in bed than elsewhere. The so-called Gatch bed, which permits of a back-rest with elevated lower extremities flexed at the knees, thus preventing the patient from slipping down in bed, is a distinct addition to our means of catering to the comfort of the dyspneic cardiac patient.

Patients who are less ill may be allowed to exchange the bed for the sofa or to sit in a chair a part of the time. Later on half rest may be adopted and gradually, as improvement occurs, we pass from the application of the principle of protection to that of the principle of exertion and gradually increase the amount of bodily and mental activity permitted for the patient.

During the rest which we give the patient we must make sure that he gets sufficient sleep. Often a rearrangement of the life, with partial or complete isolation and simplification of the diet will restore sleep to the patient with heart disease who, for weeks, has suffered from insomnia. Sometimes half a glass of hot milk with a biscuit at bed-time is sufficient to send the patient off to sleep. Where drugs are necessary bromide of sodium or a small dose of veronal may be useful for a night or two. In severe cases with dyspnea, cough, restlessness and insomnia great benefit may be derived from a night or two of complete rest through the hypodermic use of morphine. Where venous engorgement is great the therapy may well be started by a venesection, some 200 c.c. or 300 c.c. being drawn from a vein at the bend of the elbow.

If hydrothorax or ascites exists, as is often met with in the severer forms of circulatory failure, it is wise cautiously to tap the thorax or the abdomen and draw off the fluid. In excessive edema of the lower extremities it may be useful to puncture with Southey's tubes, but in a majority of cases if the heart muscle is capable of response to our methods of treatment the dropsy and anasarca can be quickly removed with the aid of rest, heart tonics, laxatives and diuretics. Of the diuretics most useful for the purpose diuretin and theocin may be mentioned. Of the former one may give two doses of fifteen grains each on the first day and four doses of the same size on each of the three following days, prescribing the drug in the form of seven and one-half grain capsules. Of theocin, which is a synthetic form of theophyllin, one may give three grains three times a day in powder form or dissolved in a little warm tea. One ought not to forget, however, the great value of calomel in certain cases as a diuretic. It is best, I think, to reserve it for the cases which refuse to yield to other methods, as unpleasant results sometimes follow its administration in the doses required for the purpose. In such obstinate forms of anasarca due to heart disease (without primary kidney lesion) one may give three grains of calomel three times a day for three days. It is a heroic remedy and should be used only under the close eye of the physician. It is well to add a small amount of opium to each dose to prevent excessive diarrhea; even then the diarrhea may be so profuse that it becomes necessary to interrupt the administration of the drug. The diuresis does not appear, as a rule, until the third day of administration. If none should result by the fourth day then there is no use continuing the treatment longer. During the administration of the calomel the teeth should be carefully brushed thrice daily with Pebeco tooth paste which contains fifty per cent. of chlorate of potash and will help to prevent ptyalism. Calomel may, in certain instances, be advantageously combined with digitalis and squills as in that favorite old prescription known as Addison's pill.

One advantage of the milk diet used in the Karrel cure is the enormous diuresis sometimes produced.

Attempts to reduce edema or dropsy by sweating, while often valuable in kidney disease, should be most cautiously used, if at all, in cardiac cases.

(*To be Concluded.*)

NOTES ON ACUTE PERITONITIS.*

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There is no disease more insidious in its onset, or more serious in its consequences than peritonitis in any one of its many forms. The disease is essentially a complication, or secondary to some other condition, and is always watched for, and feared, as one of the most unfortunate developments. The literature on the subject is most exhaustive, and yet few articles or books treat of it in a way which makes it clear or plain for the busy practitioner. In this paper, the chronic forms are omitted and the subject, so far as possible, narrowed down to a statement of the essential facts in the acute form of the disease. Recognizing the condition as a complication, we must be alert to watch for and anticipate its occurrence, or, when it comes, to know and apply the best means for its relief.

The peritoneal coat is a most extensive one, estimated to have an area equal to that of the skin and serves as the lining for the immense abdominal joint. In many particulars, inflammation of the peritoneum resembles closely an inflammation of any other joint in the body. Any damage involving and destroying the integrity of the peritoneal cells constitutes an inflammation of the peritoneum, and favors more or less rapid progressive involvement of this membrane. The various conditions which may bring about such a condition may be classified under the following heads:

(*a*).—Traumatism, as gun-shot or stabbing wounds, crushing blows, or any external agency which may penetrate and damage either the parietal or visceral peritoneum, carrying infection with the injury or allowing the escape into the peritoneal cavity of the contents of one of the hollow viscera, with the accompanying infection.

(*b*).—Perforation, or rupture of any of the hollow viscera due to disease, as the appendix, gall-bladder, urinary bladder, tube, pancreas, intestines, or stomach. In these conditions, there exists a visceral inflammation, limited at first, which in its progress extends to and involves the peritoneal covering, and, either by pressure or through necrosis of the limiting wall of connective tissue and endothelial cells, breaks through and infects the general cavity.

(*c*).—Visceral infections, as metritis or perimetritis, salpingitis, pancreatic infection, suppurative cholecystitis, infected mesenteric glands, inflammation of the stomach or intestines, splenic diseases, renal inflammations, all may produce a peritonitis without rupture of their peritoneal covering. The disease destroys the subperitoneal tissue, and the cells in their weakened condition are unable to prevent the passage of bacterial agents out to the peritoneal cavity, where they set up an acute peritonitis. Thus we have a secondary peritonitis with a peritoneum which is, to gross inspection, intact.

(*d*).—Gangrene of the bowel or other viscera, due to twisting, kinking, acute obstruction, or thrombosis of a vessel such as a mesenteric vein, also may be a factor in the production of acute peritonitis.

Acute peritonitis may be local, spreading or general. In the first case, the inflammation is limited to the point of infection or initial damage. The spreading or diffuse variety is characterized by the formation of successive foci or areas of inflamed peritoneum brought about by extension from the original infection.

Not infrequently these foci will be widely separated and walled off by adhesions, so that the abdominal cavity presents the appearance of numerous localized abscesses. In every virulent or rapid case, the entire abdominal cavity will be uniformly involved, showing general inflammation of the peritoneum, with small collections of pus or the product of a particular form of inflammation in the various depressions and dependent portions of the cavity. The localization of an area of inflammation is accomplished by the agglutination of coils of intestines or adhesions of the intestines to the abdominal wall, or the omentum will surround and wall off the point of infection, playing an important part in the work of localization and the absorption

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of the infectious material and the inflammatory products, by reason of its rich blood supply.

The appearance of the peritoneum varies in accordance with the variety and severity of the inflammation. In the majority of cases, there is an exudate, either serous, fibrinoplastic, or purulent. Sometimes a fluid tinged in varying degrees with blood may indicate what is called hemorrhagic peritonitis, or there may be no exudate, as in septic or "dry" peritonitis. The peritoneum is darker in color, its blood vessels congested and standing out clearly, while at the points of greatest infection, the lustre of the peritoneum will be gone and it will present a dull, roughened appearance, or even in extreme cases, the blackened, friable characteristics of gangrenous tissue.

Despite the distinctive features of peritonitis, it is difficult to describe any train of symptoms which clearly differentiate this complication from its particular primary cause. It is of greatest importance to have made out the initial lesion as in a majority of instances the symptoms of complicating peritonitis are simply an intensification or exaggeration of the already existing signs. Certain symptoms stand out prominently in the disease as follows:

1.—Tenderness and pain. As a rule, increased or severe pain is synchronous with peritoneal involvement. For instance, at the time of perforation of an inflamed appendix, the pain will become much worse and more distinctly localized. Curiously enough, the pain subsides to a considerable degree after perforation occurs, especially as intestinal paresis develops, and care should be taken not to be misled by this apparent relief. The failure of other symptoms to correspondingly improve should emphasize the unfavorable significance of this condition. It may be said that in general, patients will have more pain in the pre-perforation stage, or in the non-perforative type, than after perforation. This is probably due to the fact that the visceral peritoneum is without sensory nerves. The tenderness is usually limited to the area of inflammation, and a spreading tenderness means a spreading peritonitis. Rarely both pain and tenderness will be absent, and this indicates a grave variety of inflammation in the presence of the other affirmative signs.

2.—Rigidity of the abdominal muscles. This is an important symptom, developing early and persisting until marked distention occurs, or the patient becomes moribund. It is an unfortunate symptom in that it precludes a careful abdominal examination, unless a localized peritonitis or pus collection exists. When the peritonitis is local, the rigidity will usually be confined to an area covering it, and is to that extent diagnostic. The physician should endeavor to differentiate between the rigidity due to peritonitis or intra-abdominal inflammation, and that of nervous origin, so often met with in frightened or hysterical patients. To do this, examination should not be made with the finger tips, but the physician should lay his whole hand gently on the patient's abdomen, and with a light rolling motion, feel the abdomen with the entire hand. In this way, the patient will be reassured, and allow a more thorough examination than could be made if the attendant "pokes" the abdomen with his finger-tips.

3.—Distention. This is a late symptom, and diagnosis should be made before it occurs, unless the case is seen late by the physician. The distention arises from constipation, coupled with paresis of the intestines which promotes fermentation of the intestinal contents. In cases where no food has been given, and the bowels previously cleared out by enemata the symptoms may appear very late, or not at all.

4.—Constipation. This occurs in proportion as the disease is localized or general. In a localized case, the bowels will move or may be evacuated, with comparative freedom, but when the coils of intestines become agglutinated by the inflammatory process, constipation becomes absolute.

5.—Percussion symptoms. If the tenderness is not too great, we may elicit a difference in the percussion note which will vary from a slight dullness, due to peritoneal thickening, to a marked dullness, indicating a large collection of exudate.

6.—Pulse. In all cases in intra-abdominal inflammation an increasing pulse rate is always a serious sign. In the face of such a pulse, a cessation of pain with a drop in the temperature to normal or thereabouts should never be interpreted favorably. The pulse is the best guide, in all such cases, and should be watched closely as an increasing pulse means a progressive inflammation. The pulse is sometimes described as thin, wiry, or thready, but this is

rarely found until the case has reached its height and is rapidly approaching an unfavorable termination.

7.—Nausea and vomiting. This symptom will probably exist with the primary disease, and the only changes with the onset of peritonitis will be that it becomes more persistent and violent and that the vomiting may become fecal in character.

8.—Temperature. This symptom is of doubtful value. The fever seems to range highest in those cases of purulent peritonitis where the patient probably has good resisting powers. A drop in the temperature has no material significance, as it may occur either with improvement or marked spreading of the disease.

Among other symptoms may be mentioned the marked depression and shock, characteristic facial expression of sunken eyes, clammy skin, and hollowed cheeks, discolored skin, and other signs which only indicate the hopelessness of the case and approaching death. All of these symptoms taken together, will usually present a picture leading clearly to a positive diagnosis. No one of them is pathognomonic. The personal equation enters largely into the making of a diagnosis as it does into the treatment. We may generalize the disease, but we must individualize the patient.

Given this striking array of symptoms, it is not difficult, as a rule, to differentiate acute peritonitis from other diseases, which present somewhat similar symptoms.

The differentiations from other acute abdominal inflammations is in a measure one of degree only, peritonitis being simply an unfavorable step in the progress of the disease. We must differentiate, however, from rheumatic affections, referred pain in pneumonia, especially in children, perirenal inflammations, acute mechanical obstructions, in referred pain in many of the acute eruptive diseases, acute nephritis and diaphragmatic and retro-peritoneal inflammations. In many cases of pneumonia, the referred pain is apt to be relieved by pressure instead of intensifying it, and a study of the general symptoms, including the increased respirations and the high temperature, together with the evidence obtained from an examination of the chest will usually disclose the existence of pneumonia. In various inflammatory diseases mentioned above, there will be some characteristic symptoms thereto, which will cast strong doubt upon the possibility of peritonitis. Looking closely for the cause of the supposed peritonitis, one will come upon evidence of symptoms pointing strongly to one of these other diseases. One valuable sign to be borne in mind, especially in hysterical cases, or cases with a strong nervous element, is that the abdominal tenderness and pain is relieved, or even disappears, under gentle or firm pressure, and the same may be said of the abdominal rigidity, which will disappear when the attention of the patient is attracted from the abdomen, while the rigidity of peritonitis persists despite all such efforts, and even under deep anesthesia.

This disease has had many classic divisions. Those already referred to, local, spreading and general, are self-explanatory. It is argued by some that a general peritonitis rarely if ever exists. While this is probably true, yet we see many cases which are so diffuse as to justify being termed "general."

The term septic peritonitis, is one frequently used, and really applies to that form which is produced by bacterial infection. We find in the majority of instances that the exudate is composed of: (a) pus, usually of yellowish or creamy color, and flowing easily from the abdominal wound. These cases as a rule respond promptly to proper operative measures. (b) The serous variety, in which the exudate is serum containing few or no pus cells. This exudate is seen in the pre- or non-perforating form of peritonitis. If the peritoneal cavity is contaminated by direct communication with a hollow viscus, the exudate is apt to take on a purulent form. (c) The sero-fibrinous exudate, serum with flakes of lymph floating therein, or plastered upon the intestines, is usually one of the gravest varieties, indicating a most virulent affection, and one apt to produce constitutional effects, which will result unfavorably despite local relief. (d) A variety sometimes called septic peritonitis, or "dry" peritonitis, is that in which there is little or no exudate, but the peritoneum is very much congested and angry looking, with loss of the normal lustre. Cases of this last variety are, for the most part, fatal. In it we are apt to find streptococcus infection, and it is usually accompanied by marked constitutional symptoms or high temperature and profound shock.

With reference to the treatment, with a clearly defined diagnosis, and no absolute contra-indication, this should be surgical. It is true that many cases of localized or mild diffuse peritonitis may recover through the natural resisting powers of the patient. Such a possibility, however, is difficult to foresee, and one assumes a tremendous risk in undertaking to await its development. When, for any good and sufficient reason, it is impossible to employ surgical treatment, these cases should be treated along as rational lines as possible. The use of opium, while admittedly a dangerous one, accomplishes one admirable purpose, in that it checks peristalsis, and in that way limits the extension of the disease by the movement of the intestines. On the other hand, it produces a more marked constipation, with the resultant absorption of effete material, and the additional embarrassment of the system by reason thereof. The most that should be attempted in the way of emptying the bowels should be by means of enemata. In this way, the lower bowel can be kept fairly empty, with little or no disturbance of the small intestine. No nourishment should be given by mouth, but the patient sustained entirely by rectal feeding.

The vomiting, which is usually so persistent and distressing, and which may become fecal, can be relieved either by small doses of morphine or an alkali. Berg has suggested that the vomitus be tested with litmus paper. If it be alkali, small doses of morphine combined with two or three drops of aromatic sulphuric acid should be given, preferably on some crushed ice. If the reaction be acid, the vomiting is best controlled by milk of magnesia, with the occasional addition of a small dose of morphine. The stomach should be washed out at intervals for the purpose of keeping it free from regurgitated intestinal contents.

Attention should be paid to the general condition of the patient, and supporting measures, such as strychnine, digitalis and other stimulants given as required. It should be borne in mind however, that of these, strychnine may set up intestinal peristalsis. The patient should be kept warm by artificial means, and if the temperature be high, it should be reduced by alcohol baths. These steps may be followed in the non-operative cases, and cases where surgical treatment cannot be applied. The surest relief, however, is afforded by opening the abdomen. The condition should be treated as an abscess, or other exudative inflammations elsewhere would be treated. One would not think of treating a suppurating knee joint or a large sub-cutaneous abscess by medical measures, and there is certainly less reason for temporizing in a case where the pus is forming and spreading over the important organs that are contained in the abdominal cavity.

There are two objects to be accomplished in the operative treatment of this disease, first the immediate relief of the patient from the consequences of the peritoneal inflammation, and second, the removal of the primary disease. In deciding which of these steps shall be done, one has to rely entirely upon the conditions found as the operation progresses.

If the patient, for instance, be in a grave condition from the extensiveness of the disease, with a rapid, failing pulse, sub-normal temperature, marked abdominal distention, and such other symptoms, the most that should be attempted is a quick opening of the abdominal cavity, with the insertion of the drainage tube. The drainage should preferably be of rubber tubing, although in the absence of better, a piece of gauze may be used. The operation should not take more than five or ten minutes, and no attempt should be made to remove either the exudate, pus, or serum, or to find the original source of the trouble.

It is surprising what excellent results will be obtained by following this course in the most extreme cases, whereas, when such cases formerly came to the surgeon they were considered as practically hopeless, and indeed from sixty to ninety per cent. of them died after operation. That was because efforts were made to cleanse the abdominal cavity by washing, irrigating and wiping and exhaustive search was made for the source of the trouble, in the belief that all the pus and the damaged organ had to be removed in order to give the patient any chance. With the treatment suggested above, however, of a simple incision and the institution of drainage, the mortality has been reduced to from five to twelve per cent.

Murphy, of Chicago, in a paper published two years ago, reported forty-nine cases of diffuse peritonitis with two deaths. The writer has been so fortunate as to save the last nine cases of diffuse peritonitis, due to appendicitis, by this simple operative procedure. If the con-

dition of the patient justifies it, a search may be made for the offending organ, whether it be a perforating ulcer, gall-bladder or appendix, or a pelvic infection. If the operation can be speedily accomplished it may be done, but it should not be undertaken unless the condition of the patient seems to warrant it, and the operation should be stopped and the wound closed temporarily if the patient's condition seems to grow worse. The rule in these cases is to insert a drainage tube into the pelvis, bringing it out either through the original incision, or if that be too high, through a stab wound over the symphysis and another tube or wick into the "kidney well" on the affected side. The patient is then put to bed with the head raised in Fowler's position and Murphy's saline treatment commenced promptly. Particularly in appendix cases, or in cases where a drainage wound is made in the side, the writer has modified Fowler's position by raising the head of the patient to an angle of about 15 degrees and then turning the patient on the right side. This makes the right flank the most dependent point for drainage, and it does not become necessary, as in Fowler's position, to first drain all the pus down in the pelvis and then have it drained upward through a tube and out of the abdomen. This modified position allows the fluid to escape through the abdominal cavity at its most dependent point.

In these cases it should be borne in mind that we will possibly have an operative hernia develop, but this is a minor consideration when we realize that the operation done is essentially a life-saver and one wherein we cannot always attend to the nicer details. The patient is fortunate to escape with his life, and to have simply a weakened abdominal wall is a simple matter which is readily corrected by a second operation.

When the first operative procedure mentioned—*i. e.*, incision and drainage—is employed, it should be borne in mind and explained to the patient, or a relative, that a second operation will probably be necessary as soon as the patient's condition warrants it, for the removal of the primary disease. This may not be so urgent in cases of appendix, though even here it should always be done, but it is a necessity in gall-tract cases, or perforation of the intestines, as they recover from the first operation with a fecal fistula remaining.

In conclusion, let me emphasize the following points:

1. Be on the lookout for the development of peritonitis in any of the diseases in which it can occur as a complication. The cardinal symptoms of pain, rigidity, vomiting, increasing pulse rate and shock should be borne in mind and due regard paid to their probable significance.

2. Remember that simple drainage is all that its name implies. It is easily done and is a marvelous life-saver.

3. The upper portion of the abdominal cavity is richer in lymphatics than the lower, and pathological fluid in the upper abdomen is more rapidly absorbed than is that in the pelvis or flanks, for instance. General toxic symptoms are more severe in the former case. This physiological fact is the basis for the elevation of the patient in Fowler's position.

4. Endeavor to keep the patient in a sitting position, or if the condition will not allow it, with the head and shoulders elevated, pending operative intervention.

5. In cases of appendiceal abscesses, or peritonitis of appendicular origin, I believe that these patients, in addition to having the head elevated, should be turned on their right side so as to localize, as far as possible, the products of peritoneal inflammation at the point of their origin. For this reason, in treating such cases, the position suggested above should be adopted.

6. The great danger in connection with drainage lies in removing it too soon. Drainage should not be removed so long as there is any free discharge, unless such discharge be fecal, or show a tendency to become so by an offensive odor due to the bacilli coli communis. Of course, if this complication occurs, the drainage should be removed and a small piece of gauze tucked in the opening in the wound. As a rule, however, it is safer to leave all drainage in for from eight to ten days. Many unfortunate conditions have developed, directly attributable to the too-early removal of drainage. Rubber drainage can be left in longer than glass drainage, and is always preferable. Gauze drainage is apt to become inter-meshed by granulations, thereby becoming firmly adherent to some portion of the abdominal contents; this involves tearing or other damage to such organs in efforts to remove the gauze. While it is true that in drainage cases, a plastic lymph canal is

quickly formed, surrounding the drain, yet from experience we know that the products of inflammation readily pass through this wall and escape by way of the drain for days after the operation, and so long as the drainage is free the drain should remain. When the drainage becomes scant, the drain should be removed and the wound kept open by the insertion of a small wick of gauze, or, if the wall be packed, this should be done lightly and at diminishing depths each day.

406 *West Grace Street.*

ILEUS.

By S. S. GALE, B. A., M. D., Roanoke, Va.

I have chosen for my subject to-night Ileus. This subject has attracted considerable attention, and various divisions have been suggested. The one hitherto accepted by the majority of surgeons has been that of Mikulicz into (a) mechanical, (b) dynamic.

More recently, Finney, in the *Annals of Surgery* for June, 1906, has suggested what seems to many a better classification. His division is as follows: (a) mechanical, (b) septic, (c) dynamic.

There is another form of ileus which is described by some French writers as pseudo—or *false ileus.* We will not consider this variety in this discussion, further than to state that cases of this sort have frequently been operated on, and when the peritoneal cavity was opened no inflammation or signs of obstruction were present; but in some cases the bowel has been opened and the gas allowed to escape, thus relieving the condition. In other cases a mere manipulation of the intestines causes enough stimulus to re-establish peristalsis, and a short time after the patient is returned to bed, the distension subsides, and the patient is relieved.

MECHANICAL ILEUS.

This is *caused* by conditions acting both within and outside the bowel. In the latter case, the term strangulation is often used, while in the former case, obstruction. Mechanical ileus may, therefore, be due to a number of conditions, the following being some of the most frequent causes, viz:

Portions of the intestine may be changed by peritonitis, until they become like cords, and lead to strangulation. Inflammation of the appendix, fallopian tubes, or Meckel's diverticulum may also produce strangulation by adhesions forming and constricting the gut. Sometimes a rent in a part of a peritoneal adhesion, or a gap in the omentum or mesentery, due to faulty development or injury, may cause intestinal strangulation. The same may be true of a rent in the uterus or bladder or suspensory ligament of the liver, or of the broad ligament of the uterus, or even of the parietal peritoneum. An external hernia may also become strangulated. The situation of such hernias is frequently indicated by their names—obturator, ischiatic, perineal, lumbar, rectal, vaginal, diaphragmatic, etc.

An internal hernia may also become strangulated in the foramen of Winslow, in the peritoneal pockets about the cecum, or in those about the duodenum or jujenum. The results of such internal strangulation are similar to those of external strangulation. In strangulation by a band, a short portion of the intestine is usually caught between the band and the posterior abdominal wall. The ileum is usually the portion of the intestine that is strangulated in both internal and external intestinal hernias. This is because of the long mesentery of this portion of the intestine, on which account it may find its way to any part of the abdominal cavity.

Strangulation may also be due to twists. There are various ways in which these twists may take place. Other forms of mechanical ileus are invagination, or intussusception. Mechanical ileus acting within the gut may also be caused by intestinal calculi, enteroliths, foreign bodies, biliary calculi, worms, or fecal masses. Sometimes the bowel becomes obstructed by intestinal carcinoma. In these cases, the growth is usually situated in the colon or rectum. Other diseases may bring about chronic ulceration and stricture, for example, tuberculosis in the small or large intestine, sometimes after dysentery, and sometimes ulcers are formed due to fecal masses. Syphilis is frequently the cause of stricture in the rectum. Sometimes the stricture develops in a loop of intestine, which has been incarcerated in a hernial sac. This is probably the result of circular gangrene of the mucous membrane. Tumors in the neighborhood of the intestines,

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particularly those growing from the uterus and ovaries, frequently compress the intestine and obstruct its lumen.

Symptoms.—These are chiefly obstipation, abdominal pains, meteorism and vomiting. As you know, obstipation is complete obstruction. The pain is due to irritation of the nerve fibers in the peritoneum.

Meteorism is caused by the development of gases of fermentation within the stagnated portion of the intestine.

Vomited matter is first the food that was last taken into the stomach, mixed with bile and mucous; later, there is principally bile and mucous, and still later it is of a dark green, or coffee-ground color, and has a foul smelling distinctly fecal odor. This is usually called fecal vomit, and it is claimed by some that formed fecal matter has been ejected. This probably is coagulated milk or other particles of food which was stained with bile. This form of vomiting is said to be due to reversed peristalsis, but it is not necessary to have reversed peristalsis to explain fecal vomiting. It is probable that the earlier the fecal vomiting sets in, the higher up the obstruction, and *vice versa*. When the stomach has been emptied by violent vomiting, it is easy for the contents of the small intestine to flow back into the stomach.

Another symptom is the increased amount of indican in the urine. This is due to the absorption of putrefactive matter from the intestine. It appears in the urine early if the obstruction is high up, and relatively later the lower down the obstruction is. This may be of some importance from a diagnostic point, but too much reliance cannot be put in it, because indican appears in a variety of other diseases, which cause putrefactive changes in the intestine.

Diagnosis.—In most cases of ileus the diagnosis is self-evident. The difficulty is to diagnose the location of the obstruction, unless it be due to some external hernia, which is apparent, or some internal tumor which may be felt, and to differentiate between mechanical and dynamic. However, in most cases it is unnecessary to do more than to determine the variety of the ileus or obstruction.

The following are some of the points that will be found helpful in making a diagnosis: First, make a careful examination of the patient, attention being especially directed to the abdomen, but the other organs, both outside and inside the abdominal cavity, should be carefully examined. It is important to decide whether peritonitis is present or not. In most cases it will not be difficult to tell if peritonitis is present. If the abdomen is everywhere sensitive and board-like, if there is absolute constipation and continuous vomiting of fecal masses, if the patient is restless, and has an anxious drawn countenance, hollow, lifeless eyes, respiration is costal and tight, and somewhat rapid, with slight elevation of temperature, a slow, practically normal pulse at first, which later becomes more rapid, small and wiry, if there is great thirst, and decreased excretion of urine, the abdomen being at first flat and board-like, later becoming gradually distended or barrel shaped, without visible or palpable intestinal coils, and if no borborygmus can be heard, a picture of acute peritonitis is typical. The absence of distinct coils of intestine is most significant. It indicates an extensive intestinal paralysis, and accompanies acute diffuse peritonitis.

There are some other symptoms which are less reliable. The temperature is uncertain, but should always be taken by the rectum. Sometimes, probably in the majority of cases, the temperature is high, but in some cases it is normal, or even sub-normal. Of course, in doubtful cases the presence of fever is suggestive of peritonitis, but its absence is not proof that peritonitis does not exist.

Another important question to decide, if there is peritonitis, what is its origin? The history of a previous disease sometimes helps to throw light on the origin of the inflammation. The most common cause is gangrenous or perforative appendicitis; or the history may show that an ulcer of the stomach or intestine has existed for a long time previous to the acute attack, or the history of previous attacks of appendicitis may be elicited. If no such evidence can be ascertained from the history, it is then necessary to think of mechanical obstruction or strangulation of the bowel.

Slight and circumscribed inflammation of the peritoneum may produce symptoms of ileus, at least for a time. In such cases, the diagnosis is suggested by the occurrence of the trouble

in the region of the organ which is often the starting point of the circumscribed peritonitis, as for example, the appendix, the gall bladder, or a tube or ovary. The severe symptom of collapse which accompanies diffuse peritonitis will be wanting. The loops of the intestines which are involved are plainly distended and are usually movable. Pressure upon them does not increase their tension since their contents can easily escape, usually with a gurgle, into the adjacent portion of the intestine. Symptoms of ileus may accompany hysteria, fecal impaction, diseases of the spinal cord, etc. In such cases the diagnosis may be difficult.

ADYNAMIC ILEUS.

This is a form of intestinal obstruction due to acute paralysis of the muscular fibers of the intestinal coats. It may follow laparotomies, injuries to the spinal cord in the dorsal region, or it may appear without any apparent cause. It is not due to septic paresis of the intestine, but the result of inhibition of nerve impulses.

The diagnosis differs only in the history and absence of objective findings from the other forms of obstruction. It is often very difficult to differentiate acute ileus from a spreading or general peritonitis, especially on the second or third day, after the occurrence of bowel paralysis in the latter condition. This difficulty is due to the fact that at this period there is in both absolute constipation, incessant vomiting, great prostration and rapid pulse.

There is perhaps less rigidity and less pain in these advanced cases of intestinal obstruction than in those of peritonitis. In the early period, viz., in the first 24 or 36 hours, the following differential points are of value:

	ACUTE PERITONITIS.	ACUTE INTESTINAL OBSTRUCTION.
1.	Rigidity.	Uniform and marked	Not so marked.
2.	Abdominal distention.	Gradual.	Rapid, except in intussusception.
3.	Visible peristalsis.	Not present.	Often visible in early hours.
4.	Pulse.	Gradual increase in frequency.	Rapid increase in frequency.
5.	Vomiting.	Present at first but does not recur until third day.	Incessant from beginning, becoming fecal.
6.	Constipation.	Some results from enemata in early hours.	No results except in fecal impaction.

(EISENDRATH.)

The leukocyte count in these conditions is very important, and one should make it whenever possible. In mechanical obstruction and acute inflammation, the leukocytosis will be relatively higher than in adynamic ileus, and of the greatest importance is the differential leukocyte count.

Everyone agrees with Gibson, who says the relative value of the polynuclear count lies in the relative disproportion of the polynuclear percentage to the total leukocytosis. In favorable cases there should be a moderate rise of the polynuclear cells only, showing that the infection is localized and absorption is limited. On the other hand, if there is only a moderate leukocytosis with a notable increase in the polynuclear cells, it indicates almost unquestionably that there is either a severer form of lesion or less resistance to absorption, or that both conditions exist.

Treatment.—The treatment in this condition is almost always surgical. Where obstruction is due to external and internal hernias that can be diagnosed, or where the obstruction is due to a tumor, etc., pressing on the gut, of course, a removal of such cause, if done soon enough, will relieve the condition.

In adynamic ileus an attempt should be made to move the bowels by enemas. In such condition, an ounce of alum in a pint of water is frequently effective.

LeJar recommends the use of an electric enema. Eserine sulphate, grain 1-50, given hypodermically every two or three hours, is sometimes effective. If eserine is not obtainable, atropine sulphate in 1-100 grain doses, given to the physiological limit, will frequently act as effectually as eserine. Where nausea and vomiting are persistent, repeated stomach lavage is of the utmost importance. Morphine should never be given if possible to avoid it. It lowers the powers of resistance, retards elimination and diminishes leukocytosis. Sparteine sulphate hypodermically will help to support the pulse and stimulate the kidneys. The patient should be placed in the Fowler posi-

tion, and, where indicated, drop salt should be given by the rectum. If such means are not effectual, surgical interference should be instituted before it is too late.

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LOCAL ANESTHETICS IN ANO-RECTAL SURGERY.*

By E. H. TERRELL, M. D., Richmond, Va.

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During recent years there have been in many departments of surgery a rapidly growing demand and a constantly enlarging field of usefulness for local anesthetics. Even many of the so-called major operations which formerly required a general anesthetic, may now be successfully and painlessly done under local or regional anesthesia.

While the field will always be limited, it is surprising how this method has grown in popularity and to what extent it is being used to-day. Still the value of this mode of rendering local areas insensitive to pain is frequently not appreciated, but should be encouraged by all surgeons in whose departments local anesthetics are applicable.

It is not the fear of operation, but the dread of chloroform or ether which causes most patients to refuse surgical aid advised by the physician. The patient with some chronic ailment, which is a source of constant annoyance but not immediately dangerous to life, will be inclined to postpone an operation requiring a general anesthetic. On the other hand, he will accept more readily the operation under local anesthesia, if he can be assured that the results will be just as good and that there will be comparatively little pain.

For instance, I have noticed the great increase in the number of hernia operations since it has become known how satisfactorily these are done under local or regional anesthesia. I believe even at the present time, however, there are not many surgeons who have perfected this technic, but those who have are getting the patients and they justly deserve them.

To do an operation under local or regional anesthesia takes a little more time and often a considerable amount of patience, but the surgeon who at all times considers the safety and comfort of those upon whom he operates, will find that these little sacrifices on his part will pay him abundantly in the end.

While general anesthesia has been one of the greatest blessings to mankind, it has an element of danger greater than we are willing to admit. Although the mortality directly attributable to the anesthetic is very small, we have all had cases which if they did not actually succumb, came so close to death as to make us feel extremely uncomfortable. It would be impossible to estimate the number of deaths due indirectly to the anesthetic. It is most natural for those who do a great deal of operating to look upon the giving of ether or chloroform as a very trivial matter, and to consider anyone a coward who hesitates to take the anesthetic immediately upon the suggestion of the surgeon. If, however, it becomes necessary for this same surgeon or some one dear to him to undergo an operation, then it is we get a very much better idea of his views on the subject.

Far be it from my intention or desire to criticise the use of the general anesthetic in any way when properly given and when necessity demands it but I do maintain that if an operation can be as successfully performed under local anesthesia, we owe it to our patients to choose for them the method which is less dangerous and which causes far less apprehension and distress.

In the line of work in which I am most interested, proctology, it has been the custom until comparatively recent years to subject the patient to a general anesthetic for the most trivial operation, for it was not deemed possible by local means to anesthetize and dilate the sphincter sufficiently to do the work satisfactorily. Now some of the best known men in this line of work claim that 75 per cent of their operations may be done under local anesthesia. Of course, the surgeon must select the cases suitable. In the first place a positive diagnosis must be made and the extent of operation determined before the work is begun. Unless this can be done, the work had best not be attempted under local anesthesia, for as previously stated local anesthetics have their limi-

*Read before the forty-first annual meeting of the Medical Society of Virginia, at Norfolk, October 25-28, 1910.

tations and these the surgeon must know. Operations upon definitely circumscribed lesions situated in a part accessible to the operator are generally satisfactorily done under local anesthesia. Then again, the temperament of the patient must be considered, for while it is not necessary that he should be unusually brave and courageous, the hysterical and highly neurotic should have a general anesthetic.

A dose of morphia hypodermically a short time before the operation is advisable, for it not only lessens the sensibility to pain but the nervous irritability as well.

The drugs of choice in this work have been cocaine and beta-eucain lactate. From recent reports probably in the future the double salt of bimuriate of quinine and urea will be used extensively. While acting a little more slowly than cocaine, anesthesia seems to be as complete and one great advantage over the latter is that the effect is of much longer duration, lasting in some cases even eight or ten days, doing away with the post-operative pains which are sometimes quite annoying. This lasting effect of the anesthetic is of special value in certain operations of the anorectal region requiring some after treatment, such as stimulating or cauterizing applications. This was well demonstrated in a patient whom I have just discharged as cured, having operated on him two weeks previously for fissure in ano under quinine and urea anesthesia. The patient, a man somewhat nervously inclined, although the sphincter was thoroughly stretched, complained of pain only at the first introduction of the needle. I treated this wound, which was left to heal by granulation, with solutions of silver nitrate six or eight times within the two weeks which it required for healing and he complained of no pain, the parts seeming to be almost devoid of any sensation whatever. There was apparently no interference with the process of healing, this having been complete in about the usual or average time.

And again, it is said to be absolutely nontoxic, which, if it be true, is of considerable importance in doing operations requiring the injection of large quantities of fluid. I have used quinine and urea only some half dozen times so far in my practice. In all except one it acted admirably; in this while the anesthesia was as complete as could be desired there followed considerable fibrosis of the parts and healing was delayed much longer than it should have been. This, I believe, was due to my having used a too large percentage and probably a greater quantity of the solution than was advisable. It is my intention to experiment further with this combination and I shall probably make a report later as to the results.

In the greater majority of operations in which local anesthetics were employed, I have used a solution of eucain, preferring this rather than cocaine, for the reasons that it is less toxic by half and that it can be sterilized by boiling without affecting it in any way. It is used in the same strengths as cocaine. In rectal work I have found a solution of one-fifth of one per cent. sufficient for all purposes.

Even injections of sterile water have been used rather extensively by some but anesthesia in this case is dependent entirely on the pressure of the fluid and distention of the parts, causing such distortion that the operation may be markedly interfered with. Its use might come in handy, however, in case of emergency.

The operations which I have done under local anesthesia have been those for fissure, fistula, peri-anal, submural and ischio-rectal abscess, prolapse of slight degree, adenoma and other benign tumors, internal, external and thrombotic hemorrhoids. After anesthetizing the parts the technic of these various operations has been the same as that ordinarily employed under general anesthesia, except in the case of internal hemorrhoids the clamp and cautery, which are most popular at the present time, have not been deemed practical and the ligature operation has been used instead. Any of the above named conditions may be very satisfactorily operated upon under cocaine or eucain, if we have a suitable patient and the dissections to be made are not too extensive. Some of them are done in the office, others at the hospital or at the home of the patient, as circumstances may require.

As might be inferred, the chief and only great difficulty in doing rectal surgery under local anesthesia is the divulsion of the sphincter muscle. This is not as difficult as might be thought, if due regard be had for its nerve supply. Gray says "The external sphincter is supplied by nerves which contain motor, sensory and sympathetic fibres. These nerves

come from three sources. Two filaments from branches formed by the third, fourth and fifth sacral nerves extend transversely across the ischio-rectal fossa and distribute themselves to the middle portion of the muscle and to the peri-anal cutaneous surface; a filament which comes off from the internal pudic just before its division into terminal branches, supplies the anterior portion of the muscle and is called the anterior sphincterian nerve; while a filament coming off from the fifth and sixth sacral nerves passes down into the hollow of the sacrum, between the levator ani muscle and the recto-coccygeus ligament, and finally reaches the posterior superficial surface of the external sphincter."

From this description, it is seen that the external sphincter has nerves entering it anteriorly, posteriorly and on either side.

The method which I have found best for anesthetizing these nerves is that described by Dr. Hirschman, of Detroit, with some slight modification. His description is best given in his own language. He says: "When ready to operate, the patient is placed on the table in the left lateral position, the left leg being extended and the right well flexed. A point one-half inch below and posterior to the posterior commissure of the anus is selected. A spray of ethyl chloride or the application of a drop of pure carbolic acid is used to lessen the pain which accompanies the introduction of the needle. Whenever it is possible the index finger of one hand, protected by a finger cot and well lubricated, is inserted in the anus and the sphincter is pulled downward and backward. The syringe, containing about one drachm of one-half of 1 per cent. solution of eucain lactate, with a fine sharp-pointed needle about two inches in length attached, is held in the other hand. The needle is inserted quickly, just beneath the skin, and four or five drops of the solution slowly injected. The point of the needle is then passed inward and laterally, going down towards and into the external sphincter muscle which, guided by the finger in the rectum, is brought down towards the needle. The point of the needle should be kept about one-half inch from the anal aperture and the injection is carried up along the posterior lateral quadrant of the anus for about three-fourths of an inch. The needle is then retracted to the point of puncture but not withdrawn. It is then pushed up on the other side in the same manner, injecting the opposite side, so that when the injection is completed the wheal of infiltration is U-shaped, the apex being at the point of puncture. Care should be taken lest the rectal wall be punctured, but with the index finger of one hand in the anus during this procedure such an accident should not occur."

I have found this method of Dr. Hirschman's an admirable one and for about two years I have been in the habit of following closely the technic as laid down by him but, noticing in some cases that the patients would complain of considerable pain when divulsion of the sphincter was being done, I was not entirely satisfied.

It will be noted in the description as given above that only the posterior and lateral portions of the sphincter are infiltrated, while the anterior sphincterian, a terminal branch of the internal pudic, which supplies the anterior portion of the muscle, is not anesthetized, and this I determined was the reason why some of my patients complained of pain when I had anticipated a painless operation. To overcome this and anesthetize the anterior portion of the sphincter, on account of its shape it is necessary that a second puncture of the needle be made. This may be done in the anterior commissure, or, which is better, somewhat to either side in a position which has already been infiltrated by the first puncture, a few drops of the solution injected as the needle is slowly carried up toward the front of the muscle. The injections of the anesthetic having been completed, after a few minutes divulsion of the muscle may be done by a sort of massage with the two index fingers introduced in the anus. While the dilatation may not be quite as complete as might be done under a general anesthetic, it will usually be found quite sufficient for all purposes.

Recently the operations which I have done under the technic of infiltrating the sphincter as described by Dr. Hirschman, with the slight but to me rather important modification of injecting the front portion of the muscle as well, have been most satisfactory and the patients have complained of practically no pain.

In some cases after the injection and dilatation of the sphincter muscle the parts will be found sufficiently anesthetic to allow the surgeon to proceed without further injections, but

usually the tissues to be operated upon will require some infiltration, this, of course, depending upon the nature of the operation to be performed.

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THE STATUS LYMPHATICUS; A CONDITION FOUND IN SUBJECTS DYING FROM GENERAL ANESTHESIA.*

By CLARENCE PORTER JONES, M. D., Newport News, Va.

Having had some bad scares from anæsthesia, I naturally became persuaded to study the cause of death from anæsthesia; and, therefore, am intensely interested in the discussion in the literature of the present day. This paper presents nothing new. It is a brief summary of reports made by competent investigators.

As I have by good fortune escaped having deaths at the hands of my anæsthetists, I have consequently had no opportunity to hold post-mortems, and am obliged to look to others for light.

Roberts, of Los Angeles, in 1908, called attention to "Status Lymphaticus," its great dangers in anæsthesia, etc. Since then others have added to his testimony in the States. Previously, however, several good men abroad, had written on the subject. Roberts says that deaths from anæsthesia are due to a condition existing in the patient, which he terms status lymphaticus, or the lymphatic constitution. He is amply substantiated by others.

As before stated, the purpose of this brief review is to call attention to a condition which most of us ignore to-day, with the hope that a discussion will take place which will arouse us to our responsibilities in the premises, so that in the future we will be constrained to give our patients more careful physical examination, and give more weight to the matter of selecting an anæsthetic.

What is this term "Status Lymphaticus?" It is one of the many great discoveries made at the post-mortem table. It was first mentioned by Bichat in 1723. Then the subject was practically forgotten till Paultauf about ten years ago wrote his very able paper. From the summary we find "Hyperplasia of the thymus is physiologically, as well as anatomically, an element of a general hyperplasia, and is a result of a derangement of nutrition or metabolism which also causes a degeneration of the cardiac centers." He found on autopsy, in addition to enlargement of the thymus, the entire lymphatic apparatus hyperplastic—nodes, tonsils (lingual, faucial and pharyngeal), together with the spleen and intestinal follicles; also changes in the circulatory system, as thin walls in the aorta and small arteries, together with cardiac dilatation.

Kolisko made six autopsies in subjects dying from cardiac paralysis due to chloroform, and reported his findings in each case as due to the condition known as 'habitus', or 'status lymphaticus,' describing the nature of the condition as follows:

1. A persistent thymus gland, which has often become considerably enlarged through an increase of its lymphatic constituents.

2. Enlarged lymph glands.

3. Adenoid vegetations in the pharnyx, enlarged follicles at the root of the tongue and in the pharnyx.

4. Enlarged follicles in the intestines and stomach. These conditions are accompanied by some dilatation of the heart, with no changes in the muscles or endocardium; or, occasionally, there is evidence of a previous cardiac dilatation, marked by thickening in the endocardium, but not recognized clinically. There is also found very frequently a hyperplastic condition of the arterial system.

Blumer says: "Individuals who are the subjects of the status lymphaticus are born with an instability of the mechanism regulating the so-called 'horror autoxicus'—at any rate, so far as the lymphatic system is concerned—so that they are subject to intermittent attacks of lymphotoxemia which may lead to reflex nervous phenomena of various kinds, or may cause death from cardiac paralysis. During the attacks of lymphotoxemia, such individuals are especially susceptible to the action of the bacterial or chemical poisons, and also to physical and chemical psychical shocks, which at these times, may cause their death under circumstances which would be trivial to a normal individual."

This seems to be a good explanation of the cause of sudden death from trivial causes, as fright, slight traumatism, diving in cold water, etc.

*Read before the Seaboard Medical Association, at Kinston, N. C., December 6-8, 1910.

The diagnosis of status lymphaticus in the living subject is clearly stated by Escderick: "They usually have a pale, thin skin, pasty complexion, and a good pad of subcutaneous fat. Frequently signs of rachitis or scrofula are present. The superficial lymph glands, especially those of the neck and axilla, are enlarged. The spleen is often palpable." To this, Roberts adds that in children there is a history of dyspnea and laryngismus stridulus; in adults, a history of fainting attacks.

According to F. D. Bullard, in these cases artificial respiration does no good. This has been my experience. I have had fourteen scares from chloroform, and one scare from ether; in the latter fright played a very important part.

The method employed by me to restore breathing, I have reported several times before, i. e., irritating the nasopharynx. This procedure was discovered by me accidently during a mastoid operation nine years ago, the patient being a fat, pale child, with enlarged submaxillary glands. During the operation breathing suddenly stopped and artificial respiration and oxygen inhalations failed to restore it. In the excitement I seized a pair of forceps and pulled away a good bit of adenoid tissue from the vault of the pharnyx with the happy result of immediate recurrence of breathing. This, by the way, was the first real scare I had had. In the other cases I have applied irritation to the nasopharynx in several ways, as the finger-nail, curette, curved applicator through the mouth; and by the probe through the nasal fossa. Only last week, I happened to be present when a surgeon did a toe nail avulsion under chloroform. The patient, a mulatto woman, suddenly stopped breathing. Artificial respiration was practiced for several minutes without avail. Upon irritating the nasopharynx with the finger-nail, the breathing promptly returned.

Now, as we have seen from the reports of trustworthy investigators, the subjects dying from anæsthesia all have—along with other things—abnormal hearts and thin blood vessels. Therefore, any anæsthesia which depresses the heart is dangerous. We know that chloroform is a heart depressant, and should not be used unless ether is contraindicated. Three years ago I abandoned chloroform for ether, and have since had no untoward results.

When a brief anæsthesia is required, freshly manufactured ethyl bromide is excellent. It is a cardiac and respiratory stimulant, and also is self limited in its duration.

It is my belief that we should tell the patient's family of the possibility of danger in anæsthesia. In some way we ought to tell them there is a remote possibility of a part being played by shock in all surgical procedure. We can illustrate to them in no plainer manner than by the fact that most deaths occurring in subjects while diving are due to shock. Especially should we make it a point to tell this, if we have any suspicion of the presence of status lymphaticus.

In conclusion I would say:—

1. That in the status lymphaticus, all anæsthetics are dangerous, particularly chloroform.

2. That ether is safer than chloroform, and should be used as a routine, unless contraindicated.

3. That irritation to the nasopharnyx should be applied in all cases of cessation of respiration under anæsthesia.

4. That we should tell the patient's family that there is always a certain element of risk in anæsthesia.

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Department Of Analyses, Selections, Etc.

Conducted By

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Causes and Prevention of Arteriosclerosis.

The alleged causes of arteriosclerosis are so numerous that there is a widespread desire to find a single primary cause which may account for all cases. It is no longer considered a normal senile change which sometimes comes on prematurely, and the belief that alcohol was responsible has disappeared, as so many non-alcoholic cases have been found, and also because heavy drinkers do not produce an undue percentage of cases. Indeed, the experimentally proved effect of alcohol is a reduction of tension. It may kill us in other ways, but we must give the devil his due as saving us from this form of death of the abstainers. Syphilis and the metals, particularly lead, are now known

to cause a different form of arteritis, and any excesses, such as venery and the misuse of tobacco, are discredited. There is a general opinion, of course, that hypertension is the ultimate cause and that vessels of poor material thicken soonest, so that the disease may appear in those of faulty physique, whereas, the normal would escape from equally strong factors. If this is so, anything which will cause hypertension can be considered a cause of arteriosclerosis, so that the primary causes must be legion. Sondern (*Arch. of Diagnosis*, April, 1910,) now finds that there is considerable evidence that the starting point is a toxemia due to faulty metabolism, chiefly of the nitrogenous compounds; and, of course, this brings into the list of causes anything which disturbs nutrition, such as worry or overwork. There follows a contraction of arterioles with a necessity for greater pressure and heart action, with the classic train of subsequent organic changes in heart, kidney and elsewhere.

The prevention of arteriosclerosis should be possible if the causes are so simple as modern investigators now seem to think, and that there would be an enormous saving of health and life, every practitioner knows. The importance of the matter is in the fact that the condition is so frequently found in our best and ablest workers who are doing so much for civilization and who can ill be spared—men whom Sondern calls "the pillars of our nation, the overworked, self-sacrificing mental laborers." Greater blood pressure seems to be Nature's way of feeding the tissues in spite of obstruction. Its artificial reduction would mean tissue starvation and other disasters, so the only thing to do is to remove the original cause which may be so trifling as to excite the derision of the patient. The lesson to be derived by laymen is the far-reaching effect of bad habits which may not seem to have any effect at all. It is like the constant dripping of water on a hard stone. We must teach that the body is not to be abused in any way, for though it reacts to avoid immediate damage, it thereby develops organic conditions which are necessarily fatal. What a plea this is for the righteous, simple life. How it condemns the strenuous life for most of us, and, too, we must not forget that excessive muscular strain is not yet eliminated as the cause of many cases. A word to young athletes may save them from the after-effects so often found.—(Editorial, *American Medicine*, December, 1910.)

A Purin-Free Diet in Certain Functional Disorders.

R. E. Peck, New Haven, says that recently Dr. Thompson and himself called attention to the prevalence of disturbances of purin metabolism in functional nervous affections. These disturbances either form the basis of the disease or are the results of the general nerve weakness and debility which interfere with the proper performance of the bodily functions and which must be altered before the train of nervous symptoms can be relieved. Evidence of the nature of the chemical processes by which the body metabolism is carried on points towards a separate and distinct enzyme which has as its special duty the changing of the nucleoproteids into purin bodies and the splitting of these into their end products. However this may be, we do know that all the body functions are under the direct control of the nervous system, and, when the patient suffers from nervous debility, the daily work, whether it be the performance of voluntary acts, both physical and mental, or the involuntary metabolic processes, is not carried on in a perfect manner, and the patient suffers from the attendant train of symptoms.

When this condition exists, any added work, such as is required by the system in caring for the purin bodies taken in with the food, will only add more work to the tired nerves without adding anything to the food value. By adopting an anti-purin diet the patient is relieved of this added work, and the stimulation of the meat extractives is not superimposed upon the hyperexcitability of those suffering from functional nervous disorders. He has found that where the individual does not improve upon the diet, it is due to the fact that instead of eating liberally of all the foods permitted, he confines himself to only two or three of the articles. The change from a meat diet can be made without difficulty if the patient eat liberally of vegetables, cereals, fruits, nuts, etc.; but in the case of an idiosyncrasy some modification must be made until he becomes accustomed to the change. Nuts are a very good substitute, containing from 5 to 10 per cent. more protein than meats and no purin bodies; and if well masticated cause no digestive disturbances.

In all cases of nerve debility, fatigue neuroses, neurasthenia, hysteria, psychasthenia, occupation neuroses, insomnia, the acute insanities, etc. the object of treatment is to conserve what nerve power still remains to the patient and bring it back to the normal mark, and this end is best attained by a liberal antipurin diet.

Foods that can be taken are: *Cereals*—Cream of wheat, puffed rice, wheat flour, wheat bread, Indian corn, macaroni, rice, tapioca, hominy. *Vegetables*—Cauliflower, cabbage, lettuce, spinach, potatoes, sweet potatoes, sweet corn, eggplant, parsnips, turnips, carrots, beets, celery, onions. *Fruits*—Oranges, bananas, grape fruit, peaches, prunes, pears, dates, figs, apples. *Nuts*—Hazlenuts, chestnuts, almonds, walnuts, pecans, butternuts. *Miscellaneous*—Milk, eggs, cheese, butter, olives, olive oil, gelatine.

Forbidden foods are meats, fish, fowl, meat soups, meat broths, beef tea, bouillon, kidney, liver, bacon, sweet-breads, peas, beans, asparagus, mushrooms, oatmeal, shredded wheat biscuit, triscuit, entire wheat bread, tea, coffee, cocoa, chocolate, ale, beer, porter, stout.—(*Physiologic Therapeutics,* January, 1911.)

The Value of the Wassermann Reaction.

Maurice Genty (*La Clinique*, November 18, 1910.) reviews the recent advances in our knowledge of the value of Wassermann's reaction. Several studies have appeared on the subject, such as that of Garin and Laurent (*Lyon Chirurgical,* August 1, 1910,) and that of Huteau (*Thesis,* Lyons, July, 1910). The ideal method of serum diagnosis would be one which would allow us to say with certainty that syphilis is present or absent, according to the results of the test. Unfortunately, Wassermann's reaction is far from being this ideal method. A number of cases have been reported in which the Wassermann reaction was positive in lupus, scarlet fever, leprosy or cancer; but this does not mean that the reaction is not specific. For all practical purposes the reaction is specific, for the diseases in which it is positive (besides syphilis, leprosy, sleeping sickness and scarlet fever) are not difficult to distinguish from syphilis. In surgery, at least, the method may be regarded as practically specific.

On the other hand, the reaction has the disadvantage of not permitting us to conclude whether or not a certain lesion is syphilitic, although it enables us to say that syphilis is probably present. This is a serious disadvantage in cases of cancer of the tongue, for example, in which a local lesion may be present with a syphilitic infection, so that even if the reaction is positive, we can neither say that we have to deal with a gumma, nor deny the presence of cancer. The same is true, for instance, of certain cerebral tumors.

The value of the reaction in different stages of syphilis may be summed up as follows: In the primary stage we know now that the reaction may be negative for a period of about six weeks, during which the Wassermann test remains negative. The infection must become generalized before the reaction becomes positive. This might be regarded as an argument in favor of excising the primary lesion early. As yet, clinical experience has not justified this conduct.

During the tertiary period the value of the reaction is somewhat uncertain, owing to the conflicting statistics. While the reaction may give positive results which enable us to affirm the presence of syphilis in 80 per cent. of cases, yet a negative reaction does not allow us to eliminate the possibility of syphilis. The reaction should never be omitted in any case in which clinical symptoms are not sufficient to make the diagnosis.—(*Medical Review of Reviews,* December, 1910.)

Relative Importance of Bovine and Human Tubercle Bacilli in Human Tuberculosis.

Park and Krumwiede, New York, conclude that tubercle bacilli isolated from man fall into two groups—the human and the bovine. Each type presents peculiar cultural and biologic characteristics, most of the cultures grouping themselves around two extremes. There is no conclusive evidence in favor of any rapid change of type. The actual number of cases examined is 436—the largest number so far covered in a single investigation: 297 occurred in persons over 16 years of age, 278 being pulmonary, and of these only one, a case of renal infection, gave bacilli of the bovine type. Children between 5 and 16 years furnish 54 cases, nine being of the bovine type, so far as the bacilli go. Eighty-four cases were

in children under 5 years, and of these 22 had bovine bacilli.

These results are in general harmony with results obtained previously. Their cases, added to cases similarly studied and recorded in literature, give a total of 1,040 cases of human tuberculosis, from which pure cultures of tubercle bacilli have been obtained and identified as either bovine or human in type. Dividing these 1,040 cases into three groups with respect to the age of the patients, we find that Park and Krumwiede place 686 cases in the first group, which comprises the patients of 16 years and over, and nine of these patients gave bacilli of the bovine type; in the second group, which covers the ages between 5 and 16, are 132 cases, 33 with bovine bacilli, and in the third group, which includes children under 5, are 120 cases, 59 of which are of the bovine bacillary type.

In not a single case of pulmonary tuberculosis have bacilli of undoubted bovine type been found; there are 568 cases of pulmonary tuberculosis in the first group and of these one case figures as furnishing bacilli of questionable bovine type.

The large proportion of the cases with bovine type consists of the infections of the abdomen and of the glands of the neck. In 15 per cent. of the fatal cases in children under 5, bovine bacilli were found.

It thus becomes evident from the results which have been briefly outlined here that the bovine type of tubercle bacillus plays a significant, and by no means negligible, part in the etiology of tuberculosis in children, and that the efforts at prevention of this disease clearly must include the sources of bovine bacilli.—Editorial, *Journal A. M. A.*, December 24, 1910.)

Editorial.

The Virginia State Health Department,

Encouraged by its successes in the fight against typhoid fever, consumption and hookworm disease during the past year, announces that it will continue the war against these diseases with renewed vigor during 1911. After a sanitary survey of the State, and the location of communities in which typhoid fever is most prevalent, preventive measures will be introduced. Tuberculosis and hookworm disease will, for the present, be fought according to the successful plans adopted last year.

In spite of the repeated warnings given, many people have refused vaccination, and smallpox has broken out in various localities throughout the State. Too much stress cannot be laid upon the fact that the profession should educate the people at large to more promptly avail themselves of the means of immunity offered by the State Health Department.

The railroads of the State are rapidly meeting the requirements of the Health Department, and it is believed that, in a short time, the sanitary conditions of all trains running in Virginia will be all that could be expected.

Pine Camp Home, Richmond, Va.

At the annual meeting of the Richmond Tuberculosis Camp Society held on the eleventh of January, a most satisfactory report was made of the work done at Pine Camp, in the treatment of Richmond's consumptives. Miss Black, head nurse, with one assistant, has done excellent work, as also has Dr. Giles B. Cook, the examining physician, who visits the Camp several times a week. Sixteen patients have been admitted since the opening of the Camp on the twenty-eighth of November last, and most of them have been decidedly benefited.

The Camp, which is located about two miles north of Richmond, occupies twenty-five acres of elevated land in the midst of pines, and is convenient to electric car line.

The Norfolk County (Va.) Medical Society

Has elected the following officers for 1911: President, Dr. Israel Brown, Norfolk; Vice-President, Dr. N. G. Wilson, South Norfolk, and Secretary-Treasurer, Dr. H. S. Baker, Norfolk. This Society holds its weekly meetings in the auditorium of the Physician's Office Building in Norfolk, and has an up-to-date library and reading room for the use of its members. One evening each month is given up to business matters, the other meetings being devoted to scientific discussions.

The Lynchburg (Va.) Medical Society,

At its meeting held the early part of this month, had the annual election of officers with the following result: President, Dr. John

Walker; vice-president, Dr. E. F. Younger, and secretary-treasurer, Dr. V. V. Anderson, who was re-elected for the fifth term. Upon adjournment of the business meeting, a smoker was enjoyed by the members in attendance.

The Fairfax County (Va.) Medical Society,

At its last regular meeting, elected Dr. C. R. Dufour of Washington, D. C., president, and Dr. Ralph A. Quick of Clarendon, Va., secretary. This Society, which meets quarterly, will hold its next meeting some time in February.

The Southside Virginia Medical Association,

At its last quarterly meeting in Suffolk, Va., elected the following officers for the ensuing year: President, Dr. J. Bolling Jones, Petersburg; vice-presidents, Drs. Edward R. Hart, Suffolk; Wm. T. Moore, Valentines; and H. M. Musgrove, Capron, and Secretary-Treasurer, Dr. Emmett F. Reese, Courtland (re-elected). The next meeting will be held at Norfolk, Va., during March 1911.

University College of Medicine, Richmond, Va.

To replace the building destroyed by fire last January, contract has been awarded for a fireproof structure of four stories, including a free dispensary, to cost $130,000, which, when completed, will be one of the handsomest medical schools in the United States. Excavations are about completed, and sand and crushed stone are now being delivered for the concrete work. The building is to be 90x130 feet, with all laboratories and class rooms constructed on the unit plan of 27x40 feet. The halls and corridors are to have Terrazo floor, while the floors of the dissecting hall, toilets and operating rooms are to be laid in Karbolith. The main lobby is to be finished in Italian marble.

It is now expected that the new building for the University College of Medicine will be ready for occupancy by the beginning of the coming session, and with its thoroughly modern and up-to-date appointments, it will readily hold its place as one of the leading medical colleges of the country.

Dr. W. D. Tewksbury,

Resident physicain at the Virginia Tuberculosis Sanatorium, Catawba, has tendered his resignation to take effect March 1, at which time he will become Superintendent of the District of Columbia Sanatorium for Tuberculosis. He was one of the physicians at the last named institution at the time he accepted the position at Catawba, about a year and a half ago. Dr. Tewksbury, though quite young, has achieved distinction as a specialist in pulmonary diseases, and it is with genuine regret that we note his resignation. He has accomplished a good work in this State, and has made for himself a large number of friends among the patients at the institution, as well as among the profession at large.

Dr. W. E. Jennings, at present assistant physician at Catawba, will succeed Dr. Tewksbury.

Dr. O. C. Brunk to Give Up Hospital Position.

It has been announced that Dr. Brunk, at present Superintendent of the Eastern State Hospital, Williamsburg, Va., will not be applicant for re-election to this position at the April meeting of the Board of that Institution. He has been eminently successful in his work, and leaves the hospital in a splendid condition. At the time of his appointment, four years ago, Dr. Brunk was the youngest man to hold a similar position in the State of Virginia.

After a special post-graduate course in New York City, Dr. Brunk will take up private practice.

Dr. R. L. Corbell,

Of Port Norfolk, Va., Norfolk County Health Officer, who was recently operated on for mastoiditis at St. Christopher's Hospital, Norfolk, is rapidly improving.

Obituary Record.

Dr. John Barbour Baskerville.

One of the most prominent physicians of Southwestern Virginia, died at his home, Dublin, January the seventeenth. He was born in Newbern, Va., in 1846, and received his academic education under private tutors and at the University Academy. After active

service for the South in the Civil War, he took up the study of medicine at the University of Pennsylvania, from which he received his degree of doctor of medicine in 1869. In addition to his connection with local medical societies, he became a member of the Medical Society of Virginia in 1894. He had practiced his profession in several different places in Southwestern Virginia, being located near Hollins Institute for some years. His widow and one daughter survive him.

Dr. Norman P. Lake

Died at the home of his father, Mr. Nalle Lake, at Rectortown, Va., January the seventh, after a short illness from typhoid fever. He was born in Upperville, Va., about thirty years ago, and received his academic education at private schools and George Washington University. He graduated in medicine from the University of Virginia in 1908, and joined the Medical Society of Virginia the same year. He was a member of the Alpha Kappa Kappa Medical Fraternity.

Resolutions on Death of Dr. Landon B. Edwards.

At a regular meeting of the *Roanoke Academy of Medicine* held December 19th, 1910, the following was adopted:

Resolved, That in the death of Doctor Landon B. Edwards, the medical profession of Virginia has lost a great leader whose work and influence has gone to make up the history of organized medicine in Virginia for forty years.

That, recognizing his many great and lovable qualities as man and physician, we join with the profession throughout the State in lamenting our common loss; and offer to his family our deepest sympathy in their bereavement.

Resolved, That a copy of the foregoing be filed with the Secretary of the Roanoke Academy of Medicine, a copy be sent to the family of Dr. Edwards, and a copy be sent to the *Virginia Medical Semi-Monthly* for publication.

HUGH H. TROUT,
RALPH W. BROWN,
L. G. PEDIGO,
Committee.

The following resolutions were adopted by the *Lynchburg Medical Society.*

Death is no respecter of persons and the high and low alike fall beneath his fatal stroke.

For forty years, the name, Dr. Landon B. Edwards, has been one that always called forth expressions of the highest esteem and the warmest affection. Standing at the head of the Medical Society of Virginia during all these years, his has been a steady hand, and a clear vision; a safe and sane pilot steering into conservative channels away from the rocks and shoals of many a Scylla and Charybdis.

Be it Resolved, That the Lynchburg Medical Society feels keenly the loss of Dr. Edwards to the profession of Virginia. The vacancy made by his death as Secretary of the Medical Society of Virginia can never be filled. Its organizer, and, until his death, the leading spirit in all that pertained to its welfare, his loss will be irreparable.

He was a valuable friend to the local society, and his wise counsel and helping hand was gladly given on all occasions. His cheerful personality, his kind-hearted advice and his ever gracious companionship were an inspiration and guide. From our State Society is taken a pioneer; from our profession, an enduring personality, whose virtues we each can do well to emulate.

GEORGE J. TOMPKINS,
VICTOR V. ANDERSON,
E. F. YOUNGER,
Committee.

The following paper was read before the Medical and Surgical Society of the District of Columbia, by the Secretary, Dr. Llewellin Eliot, of Washington, D. C., January 5, 1911:

Death has again invaded the ranks of our Honorary Members, and this time we are called to deplore the loss of Dr. Landon B. Edwards, our first Honorary Member. He has followed Goodell, Hamilton, Busey, Johnston, Lovejoy and Reyburn.

Landon Brame Edwards was born in Prince Edward County, Va., September 20, 1845, and passed away November 27, 1910. In Lynchburg he received his primary education, going thence to Randolph-Macon College.

When eighteen years of age he enlisted in the Southside Heavy Artillery of the Confederate army, and served continuously until the close of the War.

In 1865 we find him among the matriculates of the Medical Department of the University of Virginia; he however, preferred to complete his medical education in the University of the City of New York, from which he was graduated March 1, 1867. Immediately after his graduation he was appointed House Physician to the Charity Hospital, Blackwell's Island; later he was Assistant Physician at Echeverria's Hospital for Nervous Diseases. In 1868 he located in Lynchburg, but in 1872 removed to Richmond.

Dr. Edwards was one of the founders of the Medical Society of Virginia, being Secretary until his death, attending every meeting except that of 1910, when his ill health prevented.

He served upon the State Board of Health in 1872.

Dr. Edwards founded *The Virginia Medical Monthly* in 1874, a journal which he conducted with impartiality; later he changed it to a Semi-Monthly.

During his medical career he was a teacher of Anatomy, then of the Practice of Medicine.

Dr. Edwards was a man of untiring energy and capacity for work, finding therein both pleasure and recreation. He was a man of strong will and convictions; aggressive, yet just; a true friend and counsellor.

The Medical Society of the State of Virginia will ever remain a memorial to his worth and devotion.

The Medical and Surgical Society of the District of Columbia revered him much. Upon all occasions his pages were opened to us. We have lost a dear friend, an enthusiastic admirer and a strong advocate.

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Original Communications.

STOKES-ADAMS SYNDROME OR HEART-BLOCK—WITH REPORT OF CASE.*

By T. C. HARRIS, M. D., Kenbridge, Va.

I desire to report a case of a rather infrequent affection, which occurred in my practice sometime ago—a case of Stokes-Adams syndrome or heart-block. This trouble is characterized by slow arterial pulse, syncopal, apoplectiform, or epileptiform seizures, and pulsations of veins of the neck, occurring at more frequent intervals than the radial pulse beat.

As text-books have so little to say on this subject, I will go a little into detail as to its cause. The trouble is due to interference with the function of the bundle of His, a slender band of muscle connecting the muscle tissues of the auricles with that of the ventricles. By way of this band and not through any nervous connections, as has been heretofore supposed, the wave of contraction beginning in the auricle is said to pass to the ventricle. If the conductivity of this band is lessened or destroyed, the ventricle fails to contract as often as the auricle and the phenomena of heart-block appears. It was formerly taught that the rhythmic contractility of the heart muscle was due to numerous nerve ganglia contained therein, and also to an inherent property of the heart muscle itself, as it has been known to contract when removed from the body, severed in portions, the portions contracting for a time in the usual rhythmic way. Which theory is correct I am unable to say, but I can say that in the case referred to, there was marked auricular contraction evidenced by pulsations of the jugulars, that were out of all proportion to the contraction of the left ventricle taken at the cardiac apex or radial pulse.

The lesion usually affecting this band of His is either specific or sclerotic. In my case, I think it probable that it was specific of antecedent origin. I am very frank to say that the case was a true puzzle to me, and I am very much indebted to information derived from a former classmate, Dr. Manfred Call, of Richmond, in arriving at a diagnosis. I took the case up with him, and had the pleasure of examining several case records of this trouble which he had collected.

The patient was a man fifty-two years of age. Occupation, country huckster, with a past history of alcoholism, although he has not drunk for the past five years. He is a prominent member of the uric acid class, and is well acquainted with rheumatism. He was of medium height, weighed about two hundred pounds, being corpulent mostly through the body, his limbs being of the average size. No specific history could be obtained from him, although his wife has miscarried seven consecutive times.

He consulted me first on the road in the winter of 1909 for dizziness, which was then transient, but caused him right much discomfort. He was given saline purges in the form of sal hepatica, alkalin diuretics with bromides, and put on restricted diet, avoiding meat, sweets, etc. This relieved him of his dizziness for a time, but it continued to return, each time becoming more troublesome.

In July, 1909, he came to my office complaining of the dizziness and slight unconcious spells, which he described as a flash. The light would go out for a second or two, and he felt dazed. These spells were irregular, several occurring one day; then he would go several days without them. On examination he appeared nervous. His tongue was clean,

*Read before the Seaboard Medical Association, at Kinston, N. C., December 6-8, 1910.

bowels and kidneys active, urinary examination negative, appetite fine. His pulse was taken and found to be slightly irregular, rate fifty-five, small and feeble. He complained of pumping in his ears, due to pulsation in the jugulars. Heart seemed enlarged, apex beat feeble. No valvular defects could be made out. He was requested to lie down, which produced little change in his heart action. He was sent up a flight of steps, which caused him some dyspnea, slowed his pulse instead of exciting it and increased the pumping in his ears; it also caused him to feel dizzy.

From his symptoms, appearance and past history, and my knowledge of his unfailing appetite, I thought the case one of fatty infiltration. He was cut off from all fat producing foods, given principally a proteid diet, and ordered to take slight exercise, carefully avoiding sudden or over-exertion. He was given aromatic spirits of ammonia and bromides for the attacks, and strychnine and strophanthus as muscular heart stimulants.

He kept up and around with the seizures continuing irregularly, but gradually increasing. Some days he would have a good many, then he would escape them for several days. The state of his bowels and diet seemed to have no effect on them; however, any mental excitement, anxiety or worry, or undue exertion was apt to bring them on.

His pulse kept continually reducing in spite of all treatment, until about October the first, when it reached the level of twenty-two, while the seizures continued irregular, sometimes fifty or more a day. He was kept constantly in bed and as quiet as possible. All forms of excitement were removed as far as possible from his surroundings, while numerous sedatives were tried to procure sleep and to produce quiet, such as bromides, tincture valerianate ammonia, Hoffman's anodyne, codeine, and even morphine in small doses. If he escaped the attacks during the day, he would have them during the night. Would frequently awake with one just over; consequently, he slept badly, living in dread of the attacks. What sleeping he did was constantly disturbed with trouble and bad dreams.

It was some time before I could witness one of these seizures as he was kind enough to get over them before I could get there. When I did witness them, I found the face red and suffused instead of pallid. The pulsations in the neck were marked, though his pulse was extremely slow, apex beat very feeble. Extremities were generally cold, frequently in clammy perspiration, and the patient evidenced much mental anxiety.

This condition lasted about six weeks, his pulse never going above twenty-two. During this time he was kept on a liquid diet, and lost fifty pounds in weight. The strychnine and strophanthus were pushed to the limit without any appreciable improvement in the pulse rate, although it seemed to keep up the force and volume of the pulse. He was also given proto-iodide of mercury, alternating weekly with potassium iodide. About the seventh week his pulse gained two beats, and continued to gain from two to three beats each week until forty-six was reached. It now ranges from forty to forty-six. The pulsations in his neck are felt in his ears whenever he undergoes any exertion, which he is still careful to avoid. He had had only one of the epileptiform seizures since the December preceding, and the attack here referred to was in February, and was brought on by ascending a flight of steps. *It is to be noted* that his pulse was less at this time than, when he came under observation. He continued the strophanthus until July last, when this was gradually dropped. He still takes treatment for a week each month of potassium iodide with bi-chloride of mercury. He returned to his wagon about March the first, and has driven over the country regularly ever since.

The lesion in this case is evidently arrested, for how long no one can say. However, the damage that has already been done is sufficient to interfere with the conductivity of this muscle band to such an extent that his pulse in all probability will never approach seventy again.

One of the points that I would like to hear discussed here in connection with this case, is the working of this heart in relation to the general tissue circulation during this tardy period, or heart-block, when the pulse was at twenty-two for such a long period. There was at no time any evidence of edema or venous engorgement, nor was there any great impairment of the stomach, liver or intestines. There was also absence of cough and dyspnea, such as

we see in severe broken compensation of valvular disease. Yet, if we assume that the auricles were acting normally or nearly so from the natural stimulus to them, and continually forcing their stream of blood into the ventricles, the left ventricle must of necessity have undergone enormous enlargement, to accommodate about three times its normal volume of blood, especially, when we recall it was only working on one-third time. This must have been due to dilatation with attenuation, and not hypertrophy, and would explain the feeble apex beat. But why the tissue circulation did not suffer more, the lungs become engorged and all of the ills of broken compensation arise, to me can only be explained by the assumption that the right ventricle was working fairly well and must have acted independently of the left and emptied itself more frequently. The tricuspid, or safety valve, as it is sometimes called, must have failed to close completely as it sometimes does when the vessels of the lungs are already full, allowing some of the blood to be forced back into the auricle, all of which would tend to relieve back pressure and prevent venous engorgement.

Another question: What was the cause of the epileptiform seizures? Were they due to engorgement of the sinuses with passive congestion throughout the brain, or to improper arterial circulation, the dilated or weakened left ventricle being unable to send the blood to the brain? His troubled sleep and continuous dreaming would suggest a passive congestion or stagnation in the brain circulation, rather than anemia. The left ventricle which at first dilated must have later undergone hypertrophy, and, while his pulse is now less than when he came under observation, the force of contraction of the left ventricle is better. The increased strength which has been added by the hypertrophy enables it to send the blood to the brain and other tissues with such force as to be compatible with tissue metabolism. This would probably explain the cessation of the seizures.‡

These questions are brought up for other reasons than the bearing that they may have on this particular case for there is no condition in medicine more important to the physician, in my mind, than the state of the circulatory apparatus. It concerns us more or less in every form of disease, and unless we understand something of the pathological changes that take place in the tissues that are directly or indirectly due to changes in the circulatory system, we cannot meet the demands that are made upon us as physicians when we meet some such condition face to face.

‡The author would be glad to hear from some one in regard to the position taken as to the action of the right ventricle; also as to how a balance circulation was maintained.

SPECIAL POINTS IN ADVANCED EXTRA-UTERINE PREGNANCY.*

By SHELBY C. CARSON, A. M., M. D., Greensboro, Ala.

The problems presented by a case of ectopic pregnancy at six months or more are distinctly different from those at two or three months—so entirely different that they apparently would not fall in the same category. Were I confronted with the former, that is, after viability was well established, I would leisurely map out my plan of battle, guard sedulously against any sudden change of front, and deliberately elect both the time and circumstance of attack, at the same time realizing that the conflict would of necessity be desperate. On the other hand, I would not hesitate or lose a moment after the diagnosis was properly determined to attack an early rupture. Nor would this difference in procedure be brought about solely in consideration of the child, though largely influenced thereby. This radical difference consists in the fact that in the primary rupture the life of the fetus is already destroyed save in very rare cases, the life of the mother is in imminent danger, the embryo and sac have become a foreign mass comparatively free from vascular ramifications, thereby depriving the operation of all unusual seriousness. In fact, many can be done through the vagina. In the advanced cases, so infrequent that we have only personal experience and the report of cases as a guide, the antithesis of these features is presented, that is, the life of the child is still intact and should be preserved, the life of the mother, while threatened on the order of the sword of Damocles, is not in imminent danger (according to statistics in only four or five per cent. of cases does secondary rupture occur), and the placenta and sac, so far from becoming a circumscribed, atrophied mass, are daily reaching out after new attachments and

*Read before the Mississippi Valley Medical Association, at Detroit, Mich., September 12-14, 1910.

diverting to themselves for the growth and nourishment of the fetus an enormous blood supply, the one factor according to the writer's opinion that converts this into the most formidable operation that can fall to the lot of a surgeon. It is readily surmised that reference is made to hemorrhage when releasing the sac, not a simple spurting of an artery to which a hemostat can be applied with impunity, but a lifting up, as it were, of the flood gates of the entire vascular system, many formidable sinuses gaping wide as avenues for the outrush of the blood. Naturally the question arises, if hemorrhage is the chief "bete noir," why advise a waiting policy when the material for this hemorrhage is constantly augmented? Deciding this point in the negative, some surgeons have preferred to terminate the unnatural pregnancy before term. Werder, of Pittsburg, for instance, was led to operate, with this motive in view, upon one of his three cases at seven and one-half months, but without definite advantage. My conclusion to await full term is based upon the following reasons: First, if the attachments are favorable to hemorrhage, this would be even at seven and one-half months sufficient to destroy the life of the mother. Second, this mother, judging from a limited personal experience and from a close research into all available literature, is enjoying life and her relations to her household just as if she were normally pregnant; therefore, anything that would prematurely jeopardize her life should be deprecated. Again, (a selfish reason), there is very great satisfaction in knowing that you were compelled to a given course, if unsuccessful. Third, many, I rather think the majority, of these infants are feeble, defective and deformed, and, therefore, require the placental support to the latest moment.

Since the position of the child has much to do with its prospect for life, I have without avail considered the question as to what factors outside of possibly the posture of the mother at the time of rupture could influence its location. I can neither attribute it to any anatomical arrangement of muscles or organs nor to the force of propulsion at the time of rupture. Certain it is that the strongest and most lusty infants of this class are found in the abdominal cavity among the intestines, while the worst ill-shapen and deformed probably lie beneath the uterus, sometimes retro-peritoneal. Position has everything to do with deformity. Bovee's valuable statistics furnish the following information on this point. Of the seventy cases, both early and late, reported, a fetus was found in 33; of this number 13 were in the lower abdomen, 8 behind the uterus, and four in the tube. The safety of the child when delivered by operation is enhanced by being in the abdomen instead of the pelvis.

The personal experience of the writer in ectopic pregnancy consists of six cases. The first case, some twenty-five years ago, died in an abortive attempt at labor. I saw her at night during these pains for the first time. She had no other idea than that she was normally pregnant and the paroxysms came with the same regularity as if normal. After repeated pains, the uterus cast off a delicate membrane, decidual, the only one I have ever seen. Dr. Jas. W. Rowe in the *Lancet-Clinic,* of July 16th, reports a case where a complete cast of the uterus was thrown off eighteen hours after the operation. At that remote period when we had such a limited knowledge of extra-uterine pregnancy, some of the best authorities gravely mentioned that a decidual membrane was "pathognomonic," a fact that carried no weight; because a man who waits for such signs will be in a similar predicament to a pupil of the illustrious Gross, who having a case of gangrene of the leg from a gun-shot wound of the foot, when asked why he did not amputate, replied "Gross distinctly teaches to await a line of demarcation before amputation." The discoloration crept higher and higher, the moist cuticle fell off, the odor became more and more offensive until the vitality of a robust man succumbed without the line of demarcation appearing.

The second case lived within a mile of the first, was pregnant at that time without any suspicion of her unnatural condition, daily worked in the field and apparently had no reason to call in a physician until within a few days of her death from sepsis. This was about eleven months from conception. A well-developed, well-formed child was taken from the abdomen at the autopsy, all the secundines having become pus.

In 1898, the third case occurred, a negress with a cranial bone ulcerating through the rectum, had run a temperature for months, and gave a history of a pregnancy three years

previous,—then a gradual decline in the size of the abdomen with a long continued drainage of pus through the rectum. Removed a complete disarticulated skeleton through an abdominal incision, with the result of death from exhaustion on the sixth day.

The other three cases occurred in 1905, 1906 and 1908, respectively. Two were relieved by the vaginal route after the hemorrhage had ceased but while the pelvis was still filled with clots; the other, through the abdomen by amputation of the tube; all three cases made complete and speedy recoveries. But strange to say, the writer has received more information and instruction from a case simulating advanced extra-uterine pregnancy than from all his past experience. This case was the basis of a paper read before the Southern Medical Association, at New Orleans, November 12, 1909, and published in the *American Journal of Obstetrics,* Vol. LXI, No. 3, 1910, under the caption of "A case of Pseudo-Viable Abdominal Pregnancy." It proved to be one of those very rare cases of thin walls to the uterus, apparently about the thickness of paper, where a differential diagnosis is exceedingly difficult. In fact, were such a case to ever come under my observation again, I would adopt for the purpose of diagnosis without any hesitation two measures, viz.: anesthesia and the thrusting the ball of the finger through the internal os. Usually the os is rather patulous. Dr. Reuben Peterson, of Ann Arbor, Mich., who read before the Southern Surgical and Gynecological Association on December 14-16, 1909, at Hot Springs, Va., a paper replete with information and valuable suggestions on "The Treatment of Advanced Extra-uterine Pregnancy," kindly wrote me a personal letter in which he insisted upon anesthesia for the purpose of diagnosis. A short time after Peterson's article, Bovee of Washington, D. C., published his paper on "Seventy Cases of Extra-Uterine Pregnancy Treated Surgically." These three papers on the same subject, appearing as they did within the space of a few months, possess a marked degree of unanimity in the vital points on this important subject.

My chief purpose in writing this paper is to try to direct especial attention to the control of hemorrhage during the operation. Fortunately, in a fair proportion of cases this does not enter as a factor of moment. Then the child can be delivered, the sac removed and the abdomen closed at once, the latter being a great desideratum. I consider it a happy coincidence that just before reading my paper in New Orleans, in which reference is made to Werder's suggestion that possibly the aorta could be compressed by clamps or metal bands, Matas captured the Association with one of his talented lectures upon the compression of blood vessels for surgical purposes, illustrating by slides a series of experiments that he had conducted upon dogs, wherein it was made plain that it was both practical and feasible to regulate the amount of blood passing through an artery, such as the carotid or femoral, for 72 hours without damage to the coats of the vessel. After testing various substances, he had concluded that the ordinary block tin was superior to all others in that one could mould it to the vessel with his finger and lessen the lumen at pleasure. Halstead has invented a metal band for this purpose. In fact, one of our number, an authority in these matters, Crile has his clamp, and in the *Journal A. M. A.,* of August 20th, there appears an illustration of a clamp by Dr. G. N. Stewart, also of Cleveland, Ohio. Until further experience has brought greater confidence in this expedient, I would avoid any instrumental compression of such an important vessel as the aorta. Several deaths from hemorrhage after the ovarian and uterine arteries had been ligated have been reported—in fact, after a hysterectomy, as in the case of Dr. W. D. Porter, of Ohio, where he states: "The removal of the fetus was followed by a frightful hemorrhage. The blood seemed to pour out like water from an artesian well. * * * The mother died in three hours. * * * The fetus was frightfully deformed." It would seem that not only would some larger artery have to be selected, but, very important indeed, the supply should be cut off for a considerable time in order that thrombi might form and the placental site to some extent become exsanguinated. Although my experience is nil, I venture the suggestion that the operation be done in two stages when necessary or advisable, at an interval of 48 to 60 hours according to the judgment of the operator. In the first stage, let the abdomen be opened, the child delivered, the iliacs tightly compressed by metal bands, and further, to be doubly sure, the ovarian and uterine arteries clamped by rubber covered forceps, if they can

be approached. In the second stage, separate the sac, release the blood vessels after ligating the anomalous ones, and close the abdomen. Sometimes a hysterectomy is imperative. This differs from and apparently is superior to the old method of uniting the sac to the incision, and awaiting for weeks its separation, since in this method the danger from sepsis is eliminated.

ON THE TREATMENT OF SOME OF THE FORMS OF CARDIAC FAILURE.*

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Professor of Medicine, Johns Hopkins University, and Physician-in-Chief, Johns Hopkins Hospital.

(*Concluded from page* 463.)

In applying the principle of exertion we may resort, as I have said, to three principal sets of measures: (1) the administration of drugs which excite the activity of the heart; (2) the exposure of the skin to the stimulus of gas bubbles and salts in the so-called carbon-dioxide baths; and (3) the administration of massage and the active and passive exercising of the muscles of the body.

As to drugs which are useful in strengthening the heart muscle there is one, as everyone knows, which stands out above all others. I mean, of course, digitalis. Next to it may be ranked, perhaps, strophanthus. Drugs like spartein, valerian, adonis, convallaria, cactus, etc., are so far inferior to the preceding two that they are practically negligible in our work. Digitalis in therapeutic doses slows the pulse, raises the blood pressure and, above all, may double or even quadruple the power of the heart. The heart empties itself better, fills itself better and in general works more economically under the action of this remarkable drug. In suitable cases the nutrition of the heart is improved and the patient is given a new lease of life. Besides its action on the heart muscle itself it must not be forgotten that digitalis preparations also constrict the peripheral arterioles and it is sometimes necessary to combine with digitalis substances, like the nitrites, which more or less counteract this effect.

The most marvellous effects of digitalis are seen in the cases of mitral insufficiency of medium severity with dilatation. The work of the mitralized heart, when the heart muscle has not been too much injured, can be greatly increased by digitalis, the rate of the heart slowed and the activity regulated. The less the heart muscle has been injured the better will it respond to therapeutic doses of digitalis. The drug is less useful in aortic cases since here it may be undesirable to slow the rate of the heart or to increase the blood pressure, but even in these cases when the blood pressure begins to fall digitalis may be useful when combined with purgation and the exhibition of diuretics. Great care must be exercised in giving digitalis when a mitral stenosis of high grade exists owing to the danger of embolism and of an excessive bradycardia, to say nothing of the increased vaso-constriction which, as a rule, we desire to avoid in mitral stenosis.

One of the most important contra-indications to the administration of digitalis in heart disease is the existence of a disturbance of conductivity in the bundle of His, a condition often first revealing itself by the appearance of a regularly intermittent pulse. Digitalis diminishes conductivity still more and a partial heart block may sometimes be made more complete by the ill-advised use of digitalis in such cases.

Important advances have been made in the technique of digitalis therapy during the past few years. Even more reliable preparations have been devised. One of the best of these on the market at present is probably the digipuratum of Gottlieb, a carefully standardized preparation freed from the stomach-disturbing digitonin. It comes in tablet form and it is convenient where digitalis is indicated to give a course of twelve doses, two tablets the first day, four the second, four the third, and two the fourth day. The administration is then intermitted for a time, to be resumed again later, if thought desirable. Where this preparation is not easily obtainable one does best to give a freshly prepared infusion made from leaves of known reliability and freshness, or the powdered leaves in capsule or pill form. Tinctures, fluid extracts and other preparations are notoriously unreliable and inconstant and too often yield unsatisfactory results.

A word should be said about the administration of strophanthus. The studies of

*An address delivered before the Medical Society of Virginia at its forty-first annual session at Norfolk, October 25-28, 1910.

Hatcher, of New York, have shown us how inconstant are the effects and how really dangerous it may be when given by the mouth. The sterile solution of strophanthin, now available, is however, a real enrichment of the practitioner's armamentarium, and I carry with me in my consultation bag a few ampullae of this sterile solution for hypodermic or intravenous use in emergency. It is undoubtedly life-saving in suitable cases. It should be injected in one milligram doses deep into the gluteal muscle and the part should be massaged for fifteen minutes after injection; otherwise there is pain. Or, it may be injected into the median basilic vein. When the vaso-constrictor effect of the digitalis preparations would be harmful, though the effect on the heart would be useful, the simultaneous administration of nitroglycerin helps us out, as does diuretin by the mouth. In severe cases of myocardial insufficiency it may be necessary to precede the digitalis treatment by the use of morphine or by a venesection.

Much has been written about the use of carbonic acid baths as strengtheners of the heart, and there has of late been much criticism also of these baths. In my mind there is no doubt that the carbonic acid bath is really a very efficient agent in cardiac therapy, provided the baths are used only when indicated and then only by those thoroughly trained in their application and conversant with their effects, for they can be a grave menace to the welfare of the patient rather than a benefit when employed by the tyro. While there can be but little doubt, as James McKenzie points out, that a large part of the benefit derived from Nauheim and other bath resort treatment is due to the rest, change, diet, etc., of those places, nevertheless the carbonic acid baths in themselves are exceedingly useful therapeutic measures in selected cases, and especially because the stimulus applied can be very exactly graded and thus suited to the individuality of the case in hand. The blood pressure rises in the bath and continues higher for from fifteen minutes to half an hour and the pulse is slowed. One can vary the strength of the stimulus by varying the amount of gas and the temperature of the water. The cooler the bath and the richer in carbon-dioxide the stronger the stimulus. At Nauheim the patient is always given an indifferent bath first and then experiments are most cautiously made to see how the patient responds. The excellent results obtained there in many cases are doubtless due to the large experience of the men who have devoted years to the work. Of course these baths are applicable only in very moderate grades of cardiac insufficiency. They are wholly contra-indicated in the severer grades.

The third method of strengthening the heart muscle is that which involves the use of massage and later of systematic active and passive movements. Too little attention is paid in this country to the application of modern mechano-therapy in the treatment of cardiac cases, though the methods have been most carefully worked out by our European confreres. One reason of the relative neglect here lies in the absence of good mechano-therapeutic institutes with trained attendants. Another is the disgust which has been aroused in many of us by the unhappy misapplication of mechano-therapeutic methods by the unskilled and ignorant.

Passive movements, massage of the extremities and deep respirations really lessen the work of the heart and so when applied come under the principle of treatment by protection. Resisted passive movements and active movements, on the other hand, as well as vibratory massage of the precordial area, really increase the work of the heart and so come under the principle of treatment by exertion. Obviously, therefore, in acute cardiac insufficiency mechano-therapy should be limited to passive movements and to gentle massage, whereas in the more chronic forms of cardiac insufficiency, especially in the diseases of the heart valves and of the heart muscle here being considered, the resisted passive movements and graded active exercises become useful. It is desirable to emphasize the vast importance of properly grading the efforts that are made, and here, of course, each individual case has to be carefully studied for itself and the treatment correspondingly individualized. From what has been said it is obvious that the method is only in small part available to the general practitioner without special training unless he practices in a town large enough to support a mechano-therapeutic institute or a group of trained mechano-therapeutists whither he can refer his patients for their

special measures. It is earnestly to be desired that instruction in this method of therapy will rapidly become more widespread in the United States, and there is a large opportunity for benevolent-minded men to endow institutes for mechano-therapy in some of our larger medical centres, where medical students can be shown the benefits to be derived from mechano-therapy and a sufficient number of workers can be given an adequate training.

Thus far I have dealt especially with the treatment of cardiac failure in the chronic cardiopathies of inflammatory origin. Now, as a matter of fact, the principles above outlined are in very large part applicable, *mutatis mutandis*, to the treatment of the other forms of cardiac failure to which I promised to refer. I need, therefore, delay you but little longer to point out a few special features which should be attended to in those conditions.

II. ATHEROSCLEROTIC CARDIOPATHIES.

In the so-called atherosclerotic cardiopathies, where the disease of the heart is dependent upon change in the blood vessels, especial caution must be taken when the principle of exertion is resorted to on account of the rigid arteries and the narrowing of their limit to response to increased blood pressure and a more strongly acting heart. Here dietetic measures are especially of value and periods of a lacto-vegetarian regime may be resorted to with advantage. Arteriosclerotic patients benefit from the regular use of mild laxatives and a course of artificial Carlsbad water, or one of the similar American waters is often of benefit. Long administration of small doses of iodide of potassium sometimes helps the patient. Where iodine is not well borne when given as iodides it may be given in the form of sajodin and in the same dose, seven or eight grains three times a day.

In atherosclerosis of the coronary vessels, especially when the patient has had attacks of angina pectoris or cardiac asthma, this iodine treatment is sometimes of great service and should be kept up for at least a year, the drug being administered for three weeks out of every month. For the anginal attacks nitroglycerin, amyl nitrite and morphine are the remedies that, together with warm local applications, help us most.

III. FATTY CARDIOPATHIES.

Among the most satisfactory forms of cardiac failure to treat, since in them excellent results are often obtainable, are those which occur in obesity, yet just here some of the worst mistakes I know of are sometimes made by an unthinking practitioner. An ill-advised, badly-regulated reduction cure may be of the greatest harm to these patients, and I have seen more than one individual who had suffered an actual break-down of the heart muscle as a result of injudicious Banting. The most important thing to do first in the fatty cardiopathy is to strengthen the heart muscle, and one has to decide in each case just how to do this. In mild cases the best results are obtained by the application of the principle of exertion; namely, by the use of systematic exercises and the carbon-dioxide baths. It is best to begin these before attempting to reduce the weight very much by strict dietetic measures. The diet should of course be regulated from the first, but only after the heart has been strengthened by exercises is it well to consider any marked reduction of the body weight.

When the cardiac muscle has become markedly insufficient in the fatty cardiopathies one has to begin by a period in which the principle of protection rather than that of exertion is applied. In spite of his fat the patient must be put to bed and given absolute bodily and mental rest and the diet arranged so as to nourish the heart adequately and to maintain at first approximately the existing body weight. Later on when the heart muscle grows stronger there may be a gradual transition from the principle of protection to that of exertion. Exercises and carbon-dioxide baths may be prescribed and a very gradual reduction cure instituted.

IV. NEPHRITIC CARDIOPATHIES.

In the cardiac insufficiency of chronic nephritis (so-called nephritic cardiopathy) therapeutic efforts are not wholly devoid of value as some pessimists would lead us to think, but are often of the greatest use in increasing the strength and comfort of the patient and prolonging his life. Here again faulty dietetic measures are often responsible for the onset of myocardial insufficiency in the hypertrophied heart of chronic Bright's dis-

ease. Von Noorden and others have more than once called attention to the grave dangers associated with the prolongation of a strict milk diet in chronic nephritis, and yet how often do we see patients, either of their own accord or through the advice of some well-meaning but mistaken physician, following for months at a time a diet which consists exclusively or almost exclusively of milk. After making sure that the diet has been properly adjusted to the needs of the patient, one does well to give him a period of rest in bed and to attempt to increase the strength of the heart beat by the application of small doses of digitalis combined with nitro-glycerin and with general massage. Later on, when the heart muscle has grown stronger, one may turn his attention to the eliminative side (diuresis and diaphoresis), but only after the muscle-strengthening process has succeeded. Where Cheyne-Stokes breathing occurs, or in attacks of cardiac asthma good results may follow the hypodermic administration of strychnine in doses of 1-30 grain. Should pulmonary edema occur and blood-stained froth appear at the mouth a hypodermic of morphine and atropine may be life saving.

V. THYREOTOXIC CARDIOPATHIES.

As has long been known a tachycardia is a most constant symptom in exophthalmic goitre and seems to be the direct result of a thyreotoxic influence upon the automatic centres of the heart. In this tachycardia the heart beats energetically and the electrical changes during excitation are more pronounced than normal, as is well seen in electro-cardiograms taken from patients suffering from this disease. The high T-wave of the electrocardiogram in the Basedowian tachycardia is particularly striking. Sooner or later, if the thyreo-intoxication be permitted to persist, the heart muscle weakens and signs of cardiac insufficiency appear; indeed death in exophthalmic goitre is not infrequently due to failure of the heart. My own experience teaches me that prophylactic measures as regards the heart are of the greatest importance in this disease. We do best to cut short the thyreo-intoxication as early as possible. One may try medical measures (rest, sodium phosphate in the morning, nux vomica and belladonna, electrical treatment), and if this be insufficient to arrest the phenomena of hyperthyreoidism one does well early to invoke surgical aid. The ligation of some of the thyreoid arteries or the extirpation of a portion of the gland will be indicated. Where the disease is advanced and the cardiac insufficiency is already marked one resorts first to the principle of protection of the heart, giving the patient prolonged rest in bed with light diet and cardiac tonics (digitalis, strychnine). After the heart has benefited from these measures surgical operation may be more safely undertaken.

BIBLIOGRAPHY.

Physicians frequently ask me to recommend a few books and journals in the English language useful to the general practitioner who is especially interested in diseases of the heart and blood vessels. We are fortunate in possessing in English several excellent books, and I need only refer to:

1. Dr. G. A. Gibson's Diseases of the Heart and Aorta. Edin. and London, 1898.

2. Dr. Graham Steell's, The Physical Signs of Cardiac Disease. Second edition, Manchester, 1891.

3. The volume of the English Translation of Nothnagel's Practice on Diseases of the Heart, edited by Dr. George Dock.

4. A most interesting volume dealing with the newer graphic studies on the heart, and full of commonsense advice regarding the treatment of cardiac patients, is the volume by Dr. James Mackenzie, entitled Diseases of the Heart, London, 1908.

5. Just recently an excellent treatise combining the results of laboratory studies with the best that is known on the clinical side, has been written by one of my co-workers in the medical clinic in Baltimore. I refer to the book by Dr. A. D. Hirschfelder, entitled Diseases of the Heart and the Aorta, Philadelphia, J. B. Lippincott & Co., (1910). This last volume can be warmly recommended to the practising physician, and if one can have only one of the volumes above mentioned he will probably do best to choose the last. Broadbent's Heart Disease, New York, 1906, and Babcock's Diseases of the Heart, should also be mentioned.

During the past few years there has been a marked tendency toward specialization in medical journals so that each subdivision of medicine now has one or more special journals devoted to it. The French physicians have done much to advance the progress of cardio-vascular studies by beginning a couple of years ago the journal entitled *Archives des Maladies du Coeur*, and about a year ago English physicians, taking a leaf out of the French book, began an admirable publication devoted to the same special branch and entitled *Heart* (Shaw & Sons, London). If one will subscribe to these two journals, he will have upon his table each month not only most valuable original articles dealing with cardio-vascular disease, but also reviews of the important publications appearing elsewhere.

At present, the promise for clinical advance in our knowledge of cardio-vascular diseases

is particularly bright. The strides which are being made, especially in the analysis of the different forms of irregular heart and of the early symptoms of cardiac failure, make it probable that before very long we shall have new and important means at our disposal, not only for the diagnosis of these conditions, but also for an improved therapy.

1035 *North Calvert Street.*

PECULIAR ELONGATED AND SICKLE-SHAPED RED BLOOD CORPUSCLES IN A CASE OF SEVERE ANEMIA.

By R. E. WASHBURN, University of Virginia.

In *The Archives of Internal Medicine* for November 15, 1910, Dr. James B. Herrick, of Chicago, reports a case of severe anemia, with peculiar elongated and sickle-shaped red blood corpuscles. He says in the introduction to his paper "This case is reported because of the unusual blood findings, no duplicate of which I have ever seen described." The patient was a negro man of 20, a native of the West Indies, who had been in the United States only about three months. At the age of 10 he had yaws, which he described as a skin disease with the formation of ulcers. For about 3 years he had felt a disinclintion to take exercise and for about a year he had had palpitation and shortness of breath. He denied ever having had syphilis or gonorrhea. He entered the Chicago hospital suffering from bronchitis.

Physical examination showed the patient to be well developed. His sclerae were tinged and his mucous membrane pale. The eyes were normal. The superficial glands were enlarged. Scars, from the ulcers to which he had referred, were seen mainly on the legs and thighs. The heart was enlarged and a systolic murmur was heard at the apex. *Blood examination:* Red corpuscles 2,880,000; white corpuscles 15,250; hemoglobin (Dare) 50 per cent. The red corpuscles "varied much in size, many microcytes being seen and some macrocytes. * * * Nucleated reds were numerous. * * * The shape of the reds was very irregular, but what especially attracted attention was the large number of thin, elongated, sickle-shaped and crescent-shaped forms." Differential leucocyte count, showed polymorphonuclears 72 per cent., small mononuclears 15 per cent., large mononuclears 7 per cent., eosinophiles 5 per cent., myelocytes (?) 1 per cent. The stools were examined and thymol was given, but neither the eggs nor embryos of intestinal parasites were found. The patient was in the hospital for four weeks and was seen twice after being dismissed, though not in a professional way.

There is a patient in the medical ward of the University of Virginia Hospital, with a somewhat similar history, whose blood shows the same, if not more marked, characteristics as in the case reported by Dr. Herrick. This patient has been under observation, at intervals, since 1907. For these reasons the case is herewith reported.

Personal history: The patient is a negro woman, aged 25, a native of Southwestern Virginia and has lived there all of her life. When she was admitted to the hospital October 25, 1910, she complained of "weakness, soreness and pain in her left side, and a sore on her left leg." She states, that she has never had good health. When a child she had measles, but has never had any other diseases of childhood. Menstruation began when she was 18 and has been fairly regular, normal in amount, and accompanied with little pain. When a small girl she had pneumonia, with pleurisy on her left side, and claims to have had pain in that side since that time. Three times within the last five years she has had chills and fever, supposedly malaria. She has never had rheumatism. There is no history of a chronic cough, but the patient is often troubled with epistaxis and sometimes spits up bloody mucus. She has shortness of breath on exertion, night sweats, and sleep starts, and is also troubled with swelling about the wrists and ankles. After eating, the patient occasionally has severe abdominal pain and is often troubled with indigestion and constipation. There is no history of any kidney or bladder trouble, gonorrhea or syphilis. The patient is a cook and has always done house work. In September 1910, she weighed 115 pounds, but has fallen off since that time.

Family History: The patient's father is living, is now an old man and has been in bad health for many years. He suffers with rheumatism and kidney disease. Her mother died about twenty years ago with rheumatism. She had four brothers, all of whom died while small children; and four sisters, three of whom

died in ehildhood, and one died in a New York hospital last June, of some brain trouble.

Present illness: About five years ago, the patient first notieed that she beeame dizzy and short of breath on slight exertion; and was also troubled with swelling in her feet and ankles. About the same time, she knoeked the skin off of her left shin and the wound beeame infected, causing a bad uleer. Sometime after this an uleer started on her right leg, though she does not remember to have hurt it. She was also troubled with severe pains in her abdomen. These beeame more frequent and for this reason she came to the hospital in the autumn of 1907. These pains would start on the left side and radiate to the region of the liver, and were sharp and stabbing in character. She returned to her home in December of the same year feeling mueh improved.

In Mareh 1908, the patient returned to the hospital and was operated on for gall stones, 107 being removed. She was dismissed in June and eontinued to have good health until the following April. At this time she returned, eomplaining of severe pain in her left side. This pain was more or less eonstant, worse in the day than at night, and also inereasing on taking a deep breath and on pressure. She also eomplained of being eonstipated—the pain being worse then than when the bowels moved regularly.

Physieal examination in April 1909, showed her mucous membranes to be pale; tongue coated; lungs and liver negative. The heart was slightly enlarged, with a systolic murmur heard best at the apex and transmitted to the axilla. The average temperature was 99 to 100, pulse 80 to 100, blood pressure 105. *Blood examination*: Red eells, 2,000,000; white eells, 11,000; hemoglobin (Sahli) 50 per eent. Differential white eount was as follows: Polymorphonuelears, 63 per cent., small mononuelears, 25 per eent., large mononuelears, 2 per eent., eosinophiles, 4 per eent., mast eells, 6 per eent. The red cells showed poikilocytes in a variety of shapes, the most common variety being of a erescent shape. *Urine and sputum*: (An average urine examination), Amber eolored, speeifie gravity, 1.010 to 1.014, aeid reaetion, no albumin, no sugar, no bile. No tuberele bacilli were found in the sputum. *Stools*: The stools were examined for intestinal parasites; the examination was negative. *Treatment*: The treatment was rest in bed, potassium iodide in increasing doses, until the physiological effect was produced, and tonics. She was discharged on June 9, 1909, after having been in the hospital for 63 days. At that time she was mueh improved, the pain in her side having disappeared.

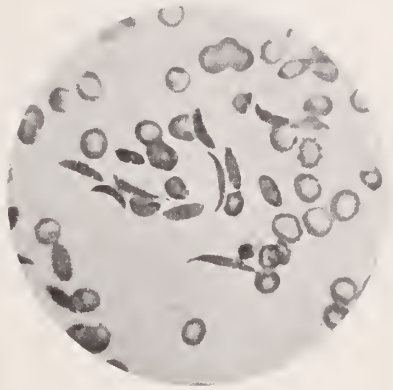

Figure illustrating the peculiar poikilocytes described on page 492. (Microphotograph made by Mr. Frank P. Smart, of the University of Virginia.)

The patient says that she had good health for about three weeks after leaving the hospital, then the pains came baek in her left side and she was not able to be out of bed. She also had shortness of breath, night sweats, and sleep starts. The uleers on her legs beeame larger and gave her mueh pain. She returned to the hospital September 18, 1909. The physieal examination was about the same as when the patient was admitted the preeeding April. *Blood examination*: Red eells 2,428,000: white eells, 8,140: hemoglobin, (Sahli) 51 per eent. Differential leueoeyte eount: Polymorphonuelears, 64 per eent., small mononuclears, 27 per eent., large mononuclears, 3 per eent., eosinophiles, 4 per eent., transitional cells, 2 per eent. Nueleated reds and ereseent-shaped poikiloeytes were present. The blood pressure was 101. *Urine*: (Average examination) Amber eolored, specific gravity, 1.010, acid reaetion, no albumin, no sugar, bile was present. Pus eells and a few granular casts were found. *Stools*: Negative. *Von Pirquet Test*: Positive. *Treatment*: Kuhn's suetion mask and iron and arsenic for the anemia: the ulcers were dressed with borie ointment. Although the stools were negative, thymol was

given, but neither the eggs nor embryos of any intestinal parasites were found.

The patient left the hospital June 27, 1910, feeling much stronger and with the ulcers on her legs healed. She obtained employment as a cook. After working for about a month, the ulcer on her left leg broke down. She also had headaches, which were worse in the morning; and the pain in her left side returned. These troubles, together with general weakness, made it impossible for her to do regular work, and since August, she has been unable to do any kind of work, as exertion made her short of breath and caused her ankles to swell. She returned to the hospital, October 25, 1910.

Physical examination: The patient is a fairly well developed negro woman, with facies characteristic of her race, and looks intelligent. The head is normal in shape. The eyes are normal and the pupils react to light and accommodation. Conjunctivae are pale and the sclerotics have a greenish tinge. The mucous membrane of the mouth looks pale; the teeth are few in number, decayed, and in a very bad condition. The tongue is broad, pale, dry, and coated. The glands of the neck are slightly enlarged. The epitrochlear and inguinal glands are palpable, while no glands are felt in the axillae. There is no hair growing in the axillae or on the pubic region. The abdomen is normal in shape and is not distended. In the upper part, a little to the right of the mid-line, is a scar made by an operation for gall stones. No masses are felt. On the left side, in the axillary line, the patient is very tender and complains of soreness in the region of the spleen. The heart is enlarged to the left, the apex impulse being in the fifth interspace, nearly an inch outside of the nipple line. It can also be percussed to the right of the sternum. The rate is normal, but it beats irregularly. The second sounds are accentuated, especially the pulmonic. There is a blowing murmur, systolic in time, heard best at the apex and transmitted to the axilla, but not to the angle of the scapula. Lungs and liver are normal. The spleen is not palpable. The patellar reflexes are present. On the left leg there are two large raw ulcers, one just above the other, and on the right leg, just above the ankle, is a scar left by a healed ulcer.

Urine: (Average examination) Amber in color, specific gravity, 1.010 to 1.018, no albumin, no sugar, slight trace of bile.

Blood examinations: October 27, 1910: Hemoglobin, (Sahli) 32 per cent.; red corpuscles, 2,572,000; white corpuscles, 9,600. Differential leucocyte count: Polymorphonuclears, 65 per cent., large mononuclears, 4 per cent., small mononnclears, 22 per cent., eosinophiles, 5 per cent., mast cells, 1 per cent., transitional, 1 per cent., myelocytes (?) 2 per cent. Nucleated reds, 6 cells in a count of 400 whites. The red cells vary much in size and shape, and show a decrease in hemoglobin. Poikilocytes are present in a variety of shapes, the most common being thin, elongated, sickle and crescent-shaped forms, as are shown in the plate on page 491.

January 8, 1911: Hemoglobin, (Sahli) 48 per cent.; red corpuscles, 2,584,000; white corpuscles, 12,400. Differential leucocyte count: Polymorphonuclears, 63 per cent., large mononuclears, 5 per cent., small mononnclears, 24 per cent., eosinophiles, 3 per cent., transitional, 1 per cent., mast cells, 2 per cent., myelocytes (?) 2 per cent. Nucleated reds, 3 cells. The red corpuscles show the same characteristics as in the above count. Many blood examinations were made between the two recorded, but the findings were practically the same in all.

Treatment and Course of the Disease: The treatment has consisted of rest in bed and nourishing food. The patient's general condition is much improved and she feels much better than when she entered the hospital. There has been little change in the quality of the blood, except the increase in the hemoglobin and a decrease in the number of eosinophiles. The character of the poikilocytes remains unchanged. The ulcers have been dressed with sterile boric ointment and have about healed over with granulation tissue.

The case is one of severe anemia, characterized by a peculiar poikilocytosis, oligocythemia, and a color index less than one, together with the presence of nucleated red corpuscles, myelocytes, and an increase in the percentage of eosinophiles. Among the suspected causes were syphilis and intestinal parasites, but both of these seem to be disproved. There is no definite history of syphilis, and the iodides, though given until the physiological

effect was produced, had no apparent influence on the anemia or on the leg ulcers. No intestinal parasites capable of producing the trouble were found upon examination of the stools, either before or after the administration of thymol. The facts do not seem to warrant a diagnosis as to the cause of the condition.

MASTOIDITIS—REPORT OF THE PAST YEAR'S WORK, WITH CONCLUSION.*

By WILLIAM F. MERCER, M. D., Richmond, Va.
Professor of Laryngology, University College of Medicine.

In presenting this brief paper on the subject of mastoiditis, I am prompted to do so on account of the unusual number and also the great variety of the cases. Further, and more particularly, I desire to call attention to the great value of the X-ray as an aid in the diagnosis of inflammatory and suppurative conditions of the temporal bone; and, lastly, to emphasize the improved technic in the post-operative treatment of these cases, greatly simplifying, and rendering less painful, the dressing of the wound, materially shortening the time for healing and with greatly improved cosmetic results. And what is most important of all, by this method of dressing, we are convinced, after many years trial, that it assists materially in the preservation and restoration of the hearing.

It is not my purpose to go into a detailed description of all the cases, but simply to direct attention to a few of the most interesting, and endeavor to bring out some of the most practical points.

The total number of cases seen from September 1, 1909, to October, 1910, was 43, classified as follows:—ordinary acute mastoiditis, 35; chronic, 6; acute recurrent, 2; of this number 26 cases were operated on.

Case 1.—Dr.————, age 37, chronic O. M. P., with acute attacks of mastoiditis, extending over several years. When I first saw the patient, found him both a mental and physical wreck from the excessive use of cocaine, the habit having been acquired from first making applications of weak solution in his middle ear for relief of pain, till now the patient is using from 20 to 30 grains of the drug a day. Radical mastoid operation performed. Patient in hospital one week, all discharge from middle ear ceasing at the end of eight weeks. No improvement in hearing. The patient has taken no more cocaine since the operation—now a little over a year ago—and is restored to perfect health, mentally and physically, having gained over thirty pounds in weight, and is again in active practice.

Case 2.—Mr. A. C., 24 years old, acute mastoiditis, operated on, in hospital one week, wound healed in three weeks, good hearing.

Case 3.—Mr. M. H., age 14, acute mastoiditis, with large subperiosteal abscess, operated on, in hospital one week, wound healed in five weeks, hearing normal.

Case 4.—Miss E. G., age 21, chronic mastoid neuralgia, operation showed bone in condition of rarification, dry and bloodless, in hospital one week, wound healed in four weeks, good hearing. X-ray picture taken in this case, after mastoid wound healed.

Case 5.—Archie S., age 11, chronic mastoiditis with chronic O. M. P. X-ray picture showed small undeveloped mastoid process with dense bone and few cells. What I term a posterior drainage operation was performed, resulting in cure of the suppurative process with restoration of the M. T. in five months with normal hearing.

Case 6.—Miss Nora H., 16 years old, acute mastoiditis, operation, in hospital one week, wound healed in three weeks, good hearing, skiagram showing great blurring of the cells.

Case 7.—Mrs. E. A. S., age 28, chronic O. M. P., with chronic mastoiditis. X-ray picture showed dense bone with obliteration of the cells, radical mastoid operation performed. The dressing had to be continued for eight weeks when all secretion of middle ear ceased. This patient's hearing was much improved: the only case in which the radical operation was done by me, which resulted in improved hearing.

Case 8.—Mr. M., age 48, acute mastoiditis, with bone perforation and enormous subperiosteal abscess. Patient had diabetes, the urine showing 8 per cent. sugar. The patient declined operation, and I did not urge it. Skiagram showed great dense boggy mass.

Case 9.—Miss Minnie C., age 37, acute O. M. P., with mastoiditis, great tenderness over mastoid, pain, high temperature, but with

*Read before the Medical Society of Virginia, at Norfolk, October 25-28, 1910.

good drainage from the middle ear. Patient declined operation, and eventually made good recovery with drum healed in six weeks.

Case 10.—Mr. P. McI., age 50, acute O. M. P., with mastoiditis, drum head opened, great pain over mastoid, great tenderness and profuse discharge from middle ear continuing for ten days. Urged operation, but patient declined. Recovered from acute symptoms in three weeks, but at end of three months still some discharge from the middle ear, with occasional pain over the mastoid. Patient refused to be operated on.

Case 11.—Mr. E. W. K., age 21, college athlete, acute O. M. P., following tonsilitis, pain, tenderness, swelling over the mastoid, high temperature, symptoms continuing for about a week and then gradually improving, all acute symptoms disappearing in about three weeks; discharge from middle ear ceased in about six weeks, hearing much reduced. This patient should have been operated on.

Case 12.—Miss Mary J., age 13, acute mastoiditis, following measles. X-ray picture taken, simple mastoid operation performed, patient leaving hospital in one week. Wound did well for three weeks when it became infected probably from the little patient's hair, eventually healing in nine weeks.

Case 13.—Miss G. McM., age 7, acute mastoiditis following measles. Usual mastoid operation, patient leaving hospital in a week, wound healed in four weeks, good hearing.

Case 14.—Mrs. B. A. R., age 31, acute primary mastoiditis, intense pain, drum head opened, followed by slight serous discharge which ceased in two days, pain, temperature continued for three weeks. X-ray picture taken which showed blurring of all the cells. Patient declined operation, pain and tenderness over the mastoid continuing for six weeks longer; usual mastoid operation then done when bone was found much more dense than would have been supposed in this length of time, showing that osteosclerosis takes place much more rapidly than we ordinarily suppose; normal hearing.

Case 15.—Mr. LaB., age 52, acute mastoiditis following grippe. Usual mastoid operation done, patient leaving hospital in a week, wound healed in two weeks, good hearing.

Case 16.—Miss L. C., age 48, chronic O. M. P., with acute mastoiditis, symptoms continued for two weeks. Patient still has a discharge at the end of two months. This is the second attack that this patient has had in five years.

Case 17.—Miss Pearl C., age 20, acute mastoiditis, following grippe, enormous subperiosteal abscess extending up over the temporal region and forward over the zygoma. Patient has mitral murmur and acute nephritis. Usual mastoid operation performed, patient in hospital two weeks, wound healed in seven weeks, good hearing, patient's general health greatly improved.

Case 18.—Miss R., age 60, acute O. M. P., both ears, symptoms continued three weeks, complete recovery, with fair hearing. Patient declined operation.

Case 19.—Miss W., age 31, acute O. M. P., with mastoiditis following cold, patient declined operation, symptoms ceased in ten days, discharge from middle ear with some pain over mastoid, continuing for two months. Hearing reduced.

Case 20.—Miss A., age 20, nurse Virginia Hospital, acute O. M. P., following tonsilitis, drum head opened, mastoid pain, tenderness very severe, profuse discharge, symptoms ceased in two weeks, all discharge ceased at the end of a month, normal hearing.

Case 21.—R., age 42, inmate State Prison, acute mastoiditis following pneumonia, usual mastoid operation, bone found perforated over antrum, patient in hospital two weeks, wound healed in five weeks.

Case 22.—Miss Edna G., age 11, chronic O. M. P., with acute mastoiditis, usual operation, patient in hospital ten days, wound healed in five weeks.

Case 23.—Mrs. P., age 24, acute O. M. P. with high temperature, tenderness over mastoid, intense pain, extensive facial erysipelas, symptoms subsided in ten days patient making good recovery.

Case 24.—Miss Daisy C., age 16, acute mastoiditis following measles, usual mastoid operation, patient in hospital one week, wound healed in three weeks, good hearing.

Case 25.—Miss K., age 25, nurse City Hospital, acute O. M. P. both ears, high temperature, intense pain, profuse discharge, tenderness and pain abating but temperature still keeping high, when patient developed acute inflamma-

tory rheumatism, ears continued to discharge for five weeks, but recovered with good hearing.

Case 26.—Mr. W. S. S., age 42, acute O. M. P. following grippe, drum head opened, with profuse discharge, tenderness and pain and temperature continuing for ten days, then symptoms subsided, drum healed in three weeks, good hearing.

Case 27.—John D,. colored, age 34, acute O. M. P. following tonsilitis, profuse discharge from middle ear, pain and tenderness, symptoms abating in ten days with good recovery.

Case 28.—Mrs. J. T. L., age 24, acute O. M. P. followed grippe, drum head opened ten days before I saw the patient, discharge continuing only two days; pain, tenderness over the mastoid with immense swelling above the ear and over the zygoma, patient's eye closed. X-ray plate showed mastoid antrum and cells normal; patient operated on by incision over the zygoma and evacuated three ounces of pus. Infection had undoubtedly traveled from middle ear along periosteum forward to the zygoma; abscess cavity healed in two weeks.

Case 29.—Earl A., age 5, acute mastoiditis following measles, usual mastoid operation, patient leaving hospital in three days, wound healed in two weeks.

Case 30.—Miss Marion C., age 17, acute mastoiditis following tonsilitis, this patient operated on by me four years ago for acute mastoiditis, when I found all the cells and bone broken down and the dura exposed. Patient made rapid recovery, with good hearing. I now found immense swelling over the mastoid, with great redness, and on operation found large abscessed cavity occupying site of former operation, the hole in the bone over dura less than half the size made at former operation. Patient in hospital one week, wound healed in four weeks, good hearing. Patient declined to have tonsils removed. This is the first case of recurrent mastoiditis in my practice.

Case 31.—Miss Mary G., age 17, acute mastoiditis following tonsilitis, intense pain in mastoid, with redness and swelling. This patient operated on by me four years ago for acute mastoiditis with great destruction of the cells and bone, the dura being exposed, space half inch in diameter. Patient made good recovery from first operation; temperature and pain continued for ten days, and then began to subside, swelling over the mastoid diminished, patient made good recovery, refused operation.

Case 32.—Miss Ollie C., age 16, acute mastoiditis following measles, usual mastoid operation, patient in hospital one week, wound healing in about three weeks, good hearing.

Case 33.—Mr. A. W., age 30 years, acute O. M. P., drum head opened, profuse discharge of pus, symptoms abating in ten days, patient making good recovery.

Case 34.—Mrs. J. B., age 40, acute O. M. P. following cold, drum head ruptured, symptoms continuing for ten days then subsiding, patient making good recovery.

Case 35.—Vera G., age 4, acute mastoiditis following measles usual mastoid operation, recovery in three weeks.

Case 36.—Raymond W., age 14, acute O. M. P. following grippe, drum head opened, profuse discharge, continuing for a week, good recovery.

Case 37.—Robert C., colored, age 22, chronic O. M. P., with acute mastoiditis, operation showed destruction of cells and bone, with large cholesteatomatous mass, cavity cleaned out when found, all the cells and posterior bony wall of the canal destroyed down to the facial canal, the nerve exposed for about a quarter of an inch. Cavity took six weeks to fill in, no facial paralysis resulting.

Case 38.—Mr. J. P. B., age 56, acute O. M. P., with mastoiditis, usual mastoid operation, with small amount of pus found, but after two days profuse flow of pus from external auditory canal, and also from mastoid wound; this ceased in five days, wound healing in four weeks, hearing good.

Case 39.—Miss Eva R., age 26, chronic O. M. P., with pain and tenderness over mastoid. X-ray picture showed dense bone with obliteration of cells; plate also showed groove for lateral sinus very far forward; radical mastoid operation performed; discharge from middle ear ceased in two months, with no improvement in hearing.

Case 40.—Mr. C. B. M., age 44. Bezoldts mastoiditis. Called to Princeton, West Virginia, to see this case. Found patient with immense swelling over mastoid and down side of neck, with facial paralysis on same side and with slight paralysis of arm and leg on other side; history given that two months previously

patient had had severe grippe, followed by nausea and vomiting, with slow pulse; then paralysis of left arm and leg developed, and in about two weeks paralysis of facial muscles on right side. These symptoms continued with improvement of his digestive symptoms, when, three weeks before I saw him, he began to complain of pain over right mastoid. This history was so unusual, that I went over the symptoms carefully again with the doctor; operation on mastoid showed complete destruction of cells and bone with perforation through the tip of the mastoid, with large abscess in the neck. Patient made rapid recovery from operation, mastoid wound filling in and healing in five weeks, paralysis of left arm and leg rapidly disappearing, and when I saw patient at end of two months, he was in perfect health with exception of slight paralysis of upper eyelid. This patient must have had small hemorrhage or effusion at the base of brain, previous to the mastoid infection.

Case 41.—William R., colored, age 29, acute mastoiditis, continuing for three weeks before I saw patient. One week previously he developed total paralysis of the external rectus on the same side, due to some involvement of the sixth nerve; usual operation performed and on account of paralysis the sinus was exposed, but found to be healthy. Patient in hospital ten days, mastoid wound healed in four weeks, paralysis of the external rectus still continues, but with apparent slight improvement. This is the second case I have seen with this symptom, the other also being in a negro in whom also there was simple mastoiditis with no brain involvement. I am at a loss to explain this symptom.

Case 42.—Miss Maggie C., age 20, acute mastoiditis. Usual mastoid operation performed, mucous membrane of the cells and antrum found greatly engorged, but no pus; patient left hospital in a week, and wound healed in two weeks; good hearing.

Case 43.—Mrs. G. H. H., age 28, acute O. M. P., with mastoiditis, intense pain, tenderness, high temperature, drum head opened, profuse discharge, symptoms abating in ten days and patient well in two weeks, but still suffers intense pain at times in mastoid. This patient should be operated on, but positively declines.

A careful analysis of this series of cases will, in addition to the relatively large number, the great variety, and the many unusual features and practical points, very forcibly convince us of one fact,—that is, the great value of an early operation in all cases of acute mastoiditis, very materially shortening the period of convalescence, and also preserving the integrity of the hearing apparatus. You will note that the average stay in hospital for these case operated on was one week, and that the average time for healing a little over three weeks. In practically every case, there resulted normal hearing; whereas, in the acute cases not operated on, the average time for cure was over six weeks, and more than half the cases were left with some impairment of hearing.

A little over two years ago, the value of the X-ray in the diagnosis of inflammatory and suppurative conditions of the temporal bone was first brought to the attention of the profession, the first work in this country being done by Dr. Iglaur, of Cincinnati, and Dr. Beck, of Chicago, the technic of making the skiagrams having been practically perfected by Dr. Lange, of Cincinnati. I have employed this method in over twenty cases, the X-ray work being done by our skillful roentengenologist, Dr. A. L. Gray. From my experience with the method so far, I have no hesitancy in saying that a properly taken skiagram is of very great diagnostic aid to the otologist, especially in the chronic cases.

In a paper on this subject, read before the Tri-State Medical Association in February last, I said, "Any method which will reveal to us the anatomical relations and the pathological conditions in the mastoid region is certainly worthy of careful consideration by the otologist; especially is this true in the chronic condition. To know beforehand the position of the middle ear, and the relation of the lateral sinus to the external auditory canal and the tympanic cavity, the height of the floor of the middle fossa of the skull, and also the condition and distribution of the cells of the mastoid process, is undoubtedly a matter of great practical value to the operator. That a properly taken skiagram of this region will give us much of this information, I am convinced." * * * "The skiagrams show, with a fair degree of clearness, first, the mastoid region and the cells; second, the position of the external auditory canal;

third, the position of the groove for the lateral sinus, and fourth, the floor of the middle fossa of the skull. Considering the great variability in the structure of the bone, to be able to gain some knowledge of the internal anatomy of the region, may frequently prove of great value to the surgeon."

Now, as to the value of the X-ray from the clinical point of view, "in the cases of chronic suppuration of the middle ear with sclerosis, the skiagrams show distinctly the increased density of the bone with more or less obliteration of the cells, and the extent of the area of osteosclerosis."

"In the very acute cases of mastoiditis with abscesses and bone necrosis, the skiagrams show distinctly the mastoid process as a general boggy mass. In the milder acute cases, with inflammation and swelling of the mucus membrane of the antrum and cells, the skiagram will show marked blurring and haziness of the cells, as compared with the sound mastoid." This information taken "in conjunction with the knowledge of the anatomical relations, will be a valuable aid in deciding what operative procedure will best suit the case."

In this series of cases reported above, in every case in which an X-ray picture was taken, the pathological conditions depicted on the skiagram were verified, and this with the anatomical relations clearly shown, made the choice and performance of the operation much easier, and gave to the operator a sense of certainty as to what he would find and feeling of security in his operative progress.

And just here I would like to go a little further and make a prediction—that, with improved apparatus and more perfect technique, I believe the X-ray will teach us much that we do not now know in regard to the destructive processes taking place in the temporal bone in the great class of unfortunate sufferers with progressive chronic non-suppurative middle ear catarrh, many of whom are doomed to total deafness, and thereby point the way to some more intelligent method of treatment than at our command at present. Dr. Gray and I have already begun some work along this line.

The method of dressing the mastoid wounds, which we call the dry method, has been practiced in the Virginia Hospital for the past six years, and, although there is practically nothing new in the method, the great saving of time in the post-operative treatment of these cases and the uniformly good cosmetic results, with restoration of normal hearing in nearly every case of acute mastoid disease, prompts me to describe the method a little in detail. And what is a matter of great importance to the patient is that after the first dressing, the subsequent dressings are practically painless—a very different condition of affairs from what occurred with the old method of washing out and packing, when the dressing of a mastoid case was quite an ordeal, usually requiring the assistance of four or five nurses, especially if the patient happened to be a little child, when its cries would often alarm the whole hospital.

The mastoid wound is stitched up, taking care to pass the needle through the periosteum with the exception of a small space at the bottom, into which is introduced a very narrow gauze drainage which should pass well up into the antrum. A gauze pad is then applied and held in place with a bandage. This dressing is removed at the end of twenty-four hours, the drainage taken out, and the antrum and mastoid cavity wiped out with pledgets of perfectly dry cotton and the drainage re-introduced. There is no washing or flushing of the mastoid wound; in fact, at the operation, no solutions are used to irrigate or wash the cavity. I have not for five years washed out a mastoid cavity, and never in the after-dressings, use in these cavities or wounds any antiseptic solution other than pure alcohol, and that only in the most virulently infected cases. The reason for not washing out the wounds at the time of operation is that we suppose that the fluid may carry infection to the deeper parts, and, in the after-dressings, injure or destroy the young granulations.

After having used and seen this method used in more than six hundred cases, I am convinced that it is far superior and much simpler than the old fashioned method of tightly packing the mastoid cavity, allowing it to fill with granulations, and then cicatrize over. The average time for healing in the cases reported above is about four weeks; as you will readily see this is far shorter than by the old fashioned method where the average time for the filling in and healing of the wound was about eight to nine weeks.

In one of the best and most practical books on modern otology, published within the past eighteen months, there are beautiful cuts illustrating the method of packing the mastoid wound to the surface, and the author says, "Folds of the strip are packed over each other with moderate firmness, until first the antrum and finally the entire mastoid excavation is filled with the gauze to the level of the skin flaps."

The author further says, "The length of time required for the complete healing of the wound varies greatly. Some cases are well within a month, while others require a much longer time."

I am aware that this method, which is sometimes called the blood clot or blood splint method, is practiced by many men, but I frequently read reports by other good men in which the statements are made that the patient remained in hospital one month and wound healed in two or three months. The average time in the hospital for the cases dressed by this dry method is about one week and the time for complete healing between three and four weeks—a very great saving in time and expense by this method.

SUMMARY.

From all the above, I think we may summarize our practical conclusions as follows:—

First.—That every case of acute mastoiditis should be operated on, thereby relieving the patient's suffering, shortening the period of convalescence and preserving the integrity of the hearing apparatus.

Second.—That a properly taken skiagram of the mastoid region is a valuable aid in diagnosis, clearly showing the anatomical relations and depicting the condition, the area and the extent of the pathological changes, thus assisting the surgeon in the choice of the operation best suited to the case. I feel that this method should receive the enthusiastic support of every progressive otologist.

Third.—That the after treatment of the mastoid wound by the dry method materially aids in lessening the patient's suffering, greatly shortens the stay in hospital and total time for cure, preserves and restores the function of hearing, and results in practically no disfiguring scar.

400 *West Grace Street.*

REPORT OF WORK DONE ON THE VERUMONTANUM.*

By LAWRENCE T. PRICE, M. D., Richmond, Va.
Instructor in Genito-Urinary Surgery and Venereal Diseases, Medical College of Virginia.

Before going into the subject which my paper covers, I think a review of the anatomy and physiology of the verumontanum might be well. The verumontanum is a small body about the size of a grain of wheat situated upon the floor of the prostatic urethra about one-fourth of an inch anterior from the vesical orifice. It is composed of erectile tissue and covered by mucous membrane. In the center is a blind pouch about an eighth of an inch deep called the sinus pocularis. This body is supposed to be the analogue of the uterus in the female.

Its function so far is thought to be a kind of back stop, so to speak, to prohibit the flow of semen back into the bladder. The ejaculatory ducts open into the urethra at the base of the verumontanum in front; the prostatic ducts in a depression on either side.

About six months ago my attention was called to a class of conditions which was relieved by treatment of this body; so, since then, when the opportunity presented itself I have had the satisfaction of relieving some patients of some very annoying conditions. I have never seen anything in text-books or literature along this line, so the treatment and the technique had to be worked out.

Upon endoscopic examination of this body you can see it very readily protruding from the floor of the urethra. In the normal subject the mucous membrane covering the verumontanum is like the rest of the urethra except slightly injected and very vascular. In the class of subjects to which I will refer, the appearance of the body is a state of inflammation, somewhat larger, protruding, bleeds very readily and is very sensitive.

The symptoms complained of are frequency of urination, pain and burning in the deep urethra, the pain sometimes being referred to the glans penis, down the thigh, scrotum, buttock or in the groin; frequent nocturnal emissions; spermatorrhea and premature ejaculations, the slightest provocation producing an erection and flow of seminal fluid, and the form of neurosis usually referred to as sexual neurasthenia.

*Read before the Richmond Academy of Medicine and Surgery, January 10, 1911

Patients complaining of this trouble usually have their complaint put under the head of prostatitis, and I used to accept this as a fact, but by giving the treatment for this condition the patient would invariably not be relieved. You will usually get a history of the individual having masturbated freely, or had a prolonged case of gonorrhea.

The logic of the idea that masturbation is the cause, in many instances, is very feasible, for the reason of the body being composed of erectile tissue, sexual excitement would cause a congestion which, when frequently and continuously indulged in, would become chronic. This state of chronic inflammation may also be caused from the result of a urethritis.

The treatment which I have carried out is either to inject into the sinus pocularis with a long-shaft syringe, a solution of 10 per cent. silver nitrate, or cauterize the surface with a 15 per cent. solution with cotton on an applicator. The pain from either of these treatments is rather disagreeable for two or three hours, and the symptoms complained of will be exaggerated for two or three days, but after the effects of the cauterization begin to clear up, so do the symptoms.

The most gratifying results have been in patients classed under the head of sexual neurasthenics. In a few instances a second treatment has been necessary, though it should not be repeated under ten days or two weeks. During the second and third days a little bleeding may be noticed from the urethra. No further treatment is necessary except to pass a full-sized sound about twice to avoid any narrowing of the canal.

The cauterization does not obliterate the verumontanum and destroy its supposed function, but the condition of inflammation is relieved and the size of the structure is reduced to its normal condition, or possibly slightly smaller.

During the last six months I have had twenty-two cases which were subjected to the above treatment. The following are typical in symptoms and were relieved by the foregoing method.

Case I.—A. W. H., age 24; general health had always been good; venereal history negative; masturbated considerably since puberty until now.

Examination—All generative organs normal except prostate slightly flabby. Cystoscopic and endoscopic examinations negative. Complained of spermatorrhea, nocturnal emissions, a sensation at completion of urination as if he had not finished, a feeling of burning and itching deep in the perineum and an erection produced on little or no provocation. Patient very excitable and nervous; exhibited a great deal of concern about his future sexual powers.

Treatment.—Injected two minims of 10 per cent. solution silver nitrate into the sinus pocularis. Symptoms after eight days cleared up; his mental condition began to improve rapidly, and in about two weeks the patient was well and has remained so.

Case II.—C. B., aged 27; well-developed man. Previous venereal history negative until eleven months ago, when he contracted a gonorrhea which apparently was cured after eight months, though he would occasionally see a drop at meatus in the mornings. Four weeks ago, began to have pain in the perineum referred along the urethra and into both testicles, frequency of urination, slight pain while voiding, unsatisfactory erections and premature ejaculations, nocturnal emissions and considerable concern mentally regarding his future sexual powers, as he was to be married shortly.

Examination.—All sexual organs normal. Urine had a few shreds in all three glasses. Endoscopy revealed a very congested verumontanum, lips of the sinus pocularis pouting and edematous.

Treatment.—Injected three minims of 10 per cent. silver nitrate solution into the sinus. All symptoms disappeared in ten days and the verumontanum presented a normal appearance.

The only other condition which simulates this condition near enough to be mistaken for it is prostatitis, though the symptoms of the latter are not at all unlike the ones caused from inflammation of the verumontanum. By an endoscopic examination all uncertainties as to differential diagnosis can be cleared up, together with a digital examination of the prostate gland.

201 *North Sixth Street.*

Birdville Sanatorium, Petersburg, Va.,

Will be formally opened February 15th, for the reception of tuberculosis patients. Miss Gemmell will be superintendent and head nurse, with Miss Humphrey as assistant. The Anti-Tuberculosis League of Petersburg expended $8,000 in buying and improving the property for this Sanatorium.

Department Of Analyses, Selections, Etc.

Conducted By
MARK W. PEYSER, M. D., RICHMOND, VA.
Secretary Richmond Academy of Medicine and Surgery, etc.

Treatment of Gastric and Duodenal Ulcers and Hyperchlorhydria.

Block, of Atlanta, says that nervous exhaustion, overwork, hurry, worry, restless nights, often form the bases for these diseases; and that the hyperacidity occurring some hours after meals usually produces the symptoms complained of—especially pain, a gnawing, empty, giving-away feeling in the stomach and general weakness, and if not relieved, eventually often nausea and vomiting followed by great relief. Examination of the stomach contents at the time of these symptoms reveals excessive acidity, which may also be demonstrated clinically by the relief afforded by alkalies when exhibited in sufficient quantities.

Treatment should be directed toward (1) stopping the irritation of the ulcers by the acid by a sufficient quantity of food of proper quality for neutralizing, and (2) the use of alkalies. The author then takes up other measures as follows:

Rest in bed is of great importance and should be continued until the patient is apparently quite well. In some cases the patient may be required only to lie down for an hour after dinner, an hour before supper and to go to bed immediately after supper.

Climate and Heat.—Patients do better in a hot climate, provided they follow the other rules of treatment, especially in reference to the use of liquids. They can be warmly clad or be confined in an excessively warm room. Hot applications often relieve the pain.

Diet.—Meals should be eaten quietly, without excitement, hurry or worry. The greatest relief is afforded by the use of boiled milk shaken up with the whites of from two to four eggs, strained and skimmed, to which one ounce of lime water may be added. Prepared in this manner, the milk does not curd or form gas. In the beginning, this mixture may be given every three or four hours, and as other foods are added the interval may be gradually increased to four or five hours to approximate the normal meal hours and train the stomach when to expect food. Meat should be next given, any kind, and be thoroughly masticated; cream, mushrooms, cooked eggs, bacon and cake do not seem to cause trouble. Tea, in small quantities, usually agrees. The patient seems to feel best and remain comfortable longer after a good sized meal of the right kinds of food. Acids of all kinds should be avoided; also fruits, jellies of acid fruits, vinegar, pickles, mustard, ginger, pepper, cheese, rice, coffee, alcohol, tomatoes and dextrin. Where there is no appetite, it may be stimulated by the free use of salt; while dill pickle or raw onion with the food may prove valuable. Plain and artificially carbonated water and drinks of any kind are forbidden. Celestin Vichy is the most valuable water.

Drugs.—It is best to keep the stomach as dry as possible, which is done by warmth, and taking as little fluid as practicable. Sometimes, however, a gastrosuccorrhea occurs, or there is a stricture, or the stomach is so dilated that it cannot empty itself, and relief is not afforded until vomiting occurs or the stomach is washed out. In these cases, belladonna is valuable, because lessening the secretions, it lessens the irritation. Olive oil seems to have a soothing effect and increases the body warmth. Bismuth sub-nitrate is very valuable when given between meals and may be advantageously combined with calcium carbonate, a strong antacid. Care should be taken not to neutralize the stomach contents to the point of interfering with digestion. Silver nitrate is particularly valuable, and should be given when the stomach is empty, one-half to one hour before food. In acute pain, a glass of Celestin Vichy or a teaspoonful of bicarbonate of soda will often give immediate relief, but not if due to curdled milk or gas formation. In case of the latter, maltine for a few weeks corrects the tendency; but the alcoholic preparations are not indicated. Strychnine is sometimes helpful, but usually bitter substances are contraindicated. Ammonium bromide well diluted with Celestin Vichy, is very valuable: but the other bromides should not be given. Ferrous sulphate is a good tonic, because it is astringent and combines with the excess acid.—(*Southern Medical Journal*, January, 1911).

Nausea of Pregnancy.

Fonde, Mobile, Alabama, follows in the main the lines laid down in the foregoing abstract in the treatment of this condition. He defines it as an earlier phase of the morbid processes described as pernicious vomiting, toxemia, eclampsia, hepatic insufficiency, acute yellow atrophy of the liver, cardiac insufficiency, albuminuria and nephritis of pregnancy.

When the patient has reached the stage of nausea with the irritated stomach and congested liver with food stasis and beginning constitutional injury, the preliminary administration of small doses of a combination of calomel, nux and ipecac, and for a short time, simple antacids, such as oxide of magnesia with perhaps some slight sedative, will be necessary. In all cases, some simple laxative, as cascara, will be needed generally throughout pregnancy.

The author's experience with the Lenharz treatment for peptic ulcer, some of his cases being actively bleeding and causing intense pain, rapid pulse and a generally bad outlook, caused him to use a modification in cases of nausea of pregnancy:

1. Rest in bed, ice pad over stomach; the object being to bring about general rest, and especially of the dynamic and secretory action of the stomach.

2. Skimmed, sweet milk containing a tablespoonful of lime water to the goblet; two tablespoonfuls at each feeding to be given every hour, the patient to be given food from a teaspoon and not allowed to feed herself. The milk is to be packed attractively in ice and administered from this package, cold. Each day the quantity is increased by two tablespoonfuls to each feeding, there being two intervals in feeding at night. By this increase it is but a short time before the patient is getting three or more quarts of milk a day. In the Lenharz diet, on the third day raw eggs are stirred in the milk and thereafter on every third day an additional article of diet is added until the patient is given much more food than is needed for the average workman; with the result that the general strength and weight together with greater resistance of the patient to all morbid conditions obtains, especially those of the nervous and functional type as we have in the nausea or toxemia of pregnancy.

As the frequent administration of milk may not be carried on after bed time, the author is accustomed to order then the familiar prescription for hyperchlorhydria composed of calcined magnesia and extract of belladonna, with at times, a little subcarbonate of bismuth, to promote rest over night from secretions and acidity in the stomach.

The frequent administration and accurate measuring of milk will generally be found unnecessary after several days or a week, when the patient's general tone and nutrition have improved. Many of the patients will be strongly prejudiced and even convinced that sweet milk hurts them most of all articles of diet; but when it is explained that milk taken in the ordinary way in an excessively acid stomach forms a large, tough bolus which causes their great distress mechanically and by provoking still further overflow of acid secretion, and that the gradual and minute quantities will logically avert the distress, a trial will promptly overcome the objection and the explanation will have a suggestive effect always valuable in functional and nervous disorders.

General hygienic measures and agreeable occupation, when permissible, are not neglected.—(*Idem.*)

Artificial Pneumothorax in the Treatment of Pulmonary Pneumothorax.

Mary E. Lapham, Highlands, N. C, says that compression of the lung with nitrogen gas is indicated in any case of pulmonary tuberculosis that does not do well after a fair trial of symptomatic and tuberculin treatment. This includes several classes, but most especially the desperate, hopeless ones that are doomed. The emaciated, prostrate patients with high fever, exhausting night sweats and purulent expectoration, with one lung totally involved and riddled with foci of destruction. Another class is unable to make or to hold, recovery, although the lesion is slight. Women are especially exposed to relapses on account of the vicious influences of menstruation.

The contraindications are any complication sufficient in itself to inhibit recovery (such as diabetes), and too great an involvement of the second lung. Lesions of the upper third of the second lung are no contraindication for two reasons. First, if the physicial signs are altered breath sounds and rales, they may be trans-

mitted from the other lung and disappear with the absence of breath sounds in the other lung. Second, the removal of toxins from the other lung exercises a most favorable influence upon the recovery of the second lung.

Throughout the treatment avoid the effects of too much pressure. The heart must not be displaced. Give the lung time to yield. The digestion must not be upset. No violent changes should be made, but slowly, gradually, persistently crush out the tubercular process without any discomfort to the patient. It will take about a year to insure an anatomical recovery, but clinical recovery is quicker.

The technic of the first filling is concerned with the production of a pleural cavity which normally does not exist. Pleural effusions offer the greatest obstacle to the success of the method. If they are universal no pneumothorax can be produced; and if the lung is held out by partial adhesions, only an incomplete pneumothorax can be obtained since the lung cannot be sufficiently compressed to extinguish the breath sounds. Pleural adhesions are most likely to be absent where good resonance is found over the most normal breath sounds. Avoid the cardiac area and the diaphragm, and if possible, choose a wide intercostal space not covered by the heavy muscles.

The advantages of the method are:

1. It saves when all else fails.

2. It adds an element of precision and certainty to recovery that can be obtained in no other way.

3. It is the best safeguard against relapse.

4. It saves time and money, and soon puts a man on his feet so that he can support his family.—(*Journal-Record of Medicine*, January, 1911).

Book Notices.

Diagnosis of Syphilis. By GEORGE E. MALSBARY, M. D., Professor of Medicine, Cincinnati Polyclinic and Post-Graduate School, Cincinnati. Harvey Publishing Co. 1911. 8vo. 422 pages. Half Morocco. $5 net.

This book relates solely to the diagnosis of syphilis. However, that subject is considered extensively in its every phase. It begins with bacteriology and the technique for finding the spirochete pallida. Then comes serum diagnosis, and, in this matter, the many, not specialists in this branch of medicine, would likely be surprised at the numerous reactions—including the Wasserman—available for diagnostic purposes. Each of these is described in detail. But, while recognizing the great value of these tests, caution is expressed at the too ready acceptance of a positive reaction as a conclusive evidence of syphilis. Such tests are not so absolute as is the finding of the spirochete pallida, and the relative value is compared with that of the blood test in typhoid fever. Methods of infection come next in order, after which follow in turn, full discussions of hereditary and acquired syphilis in all stages and all parts of the body, including the nervous system and organs of special sense.

The book is based upon notes collected during a number of years, and an exhaustive study of the literature. It contains much valuable and practical information, and will many a time serve as a useful reference book for either general or special practice. Considerably over one-fourth of the text is devoted to bibliography. While this may sometimes be useful, we believe the good to be accomplished by so extensive a *bibliography* is hardly commensurate with the additional cost.

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 to Training School for Nurses, John N. Norton Memorial Infirmary and Louisville City Hospital; Member Sloane Maternity Hospital Alumni; Ex-Secretary and Chairman Section on Diseases of Children, American Medical Association; Secretary Mississippi Valley Medical Association, etc. With seventy-three illustrations. Second edition, revised and rewritten. John P. Morton & Company, Publishers, Louisville, Ky., 1910. Price, $1.50.

This book is intended primarily for the obstetric nurse, and, incidentally, to be of some assistance to the student in medicine.

For the nurse, this will prove as serviceable *as any* of the volumes that have recently come to our attention. The great tendency of present day writers, however, is to teach the nurse more than should reasonably be expected of her—things with which she, as nurse, should have nothing to do—and in this respect the present publication is no exception. Possibly all that has been written may be in response to

a demand of the times, but, nevertheless, the likelihood is that the nurse is being trained to over-step the mark, and will eventually become a second-rate doctor and a poor nurse. If she intends to study medicine, the book is too brief; if she intends to limit her field of operations to nursing, we see no reason for going into embryology, symptomatology of early pregnancy, induction of premature labor, etc.

Editorial.

A National Department of Health.

Again we wish to call attention to, and to emphasize the need of the passage of the bill presented by Senator Owen of Oklahoma, to establish "A National Department of Health", which would mean so much to the nation at large,

The passage of the bill recently introduced in the House of Representatives by Congressman Mann, and in the Senate by Senator Martin, "To change the name of the Public Health and Marine-Hospital Service, to increase the pay of officers of said service, and for other purposes," could in no way aid, and, it would seem, would only succeed in side-tracking the bill asking for the establishment of "A National Department of Health"—a bill which all right thinking physicians should wish to pass.

What could be more needed, or should be more productive of good results, than to have a national department established in Washington, which incorporated all bureaus in any way pertaining to health matters? As these bureaus are now arranged, it is a veritable Chinese puzzle to decide to which Department to apply for information relative to various health problems which may arise. Our health interests are scattered in eight different departments, and in each case are more or less subservient to the requirements of that department. These various departments look primarily to the conservation of the Nation's forests, minerals,waters, etc. This is necessary, but is it not more important to look to the preservation of human lives? There is much to be worked out along this line in the way of preventing disease and prolonging life, which would help to do away with the immense expense for the support of hospitals for the afflicted and indigent, and also to increase the number of wage-earners throughout the country.

The establishment of this proposed National Department of Health would in no way interfere with the duties of the various State Departments of Health, but would serve to correlate forces so that they might know what was being done by other State Boards, work in unity, and be enabled to adopt the best methods from boards doing more efficient work.

Among other things to be accomplished by such a Department, would be the elimination of quacks and irregulars from the medical profession, and material assistance would be rendered in securing accurate vital statistics—a matter in which our country is especially deficient.

With such ends in view, the medical profession, as well as people throughout the State, should immediately advise their representatives in Congress to work for the establishment of this National Department of Health.

Notes From the Virginia Health Department.

Dr. Roy K. Flannagan, Chief Inspector of the State Board of Health, in his recent inspection of the hotels of the Valley of Virginia, reports that most of the hotels visited are not only in a good sanitary condition, conforming to the laws of the State Board of Health, but also that many have made improvements to meet the demands of the automobile traffic along the Valley Pike.

Reports from the Assistant Health Commissioner, Dr. Allen W. Freeman, on his visits to the rural schools, show that, while there has been marked improvement in the schools in some localities in the past few months, there is yet much to be done in the way of improved sanitation. He states that nowhere are better sanitary conditions more needed than in the elementary "one-room" schools of the State, and the people are beginning to awaken to the fact.

The Red Cross Society of Alexandria, Va., composed of representative young women of that city, has been so encouraged by the success of the tuberculosis dispensaries in other cities of the State, that it has determined with assistance promised by Congressman Carlin, to employ a visiting nurse to instruct families in the prevention of disease, and to direct

measures by which the spread of consumption will be stopped.

The Tri-State Medical Association of the Carolinas and Virginia

Will convene in its thirteenth annual session in Raleigh, N. C., February 22 and 23. Present indications are that there will be a large attendance of members to enjoy the hospitality for which "The Old North State" is proverbial. Headquarters will be at the Park Hotel, while the meetings will be held in the assembly hall of the Elk's Club. An entertainment at the Capitol Club on the evening of the 22nd, promises to be a pleasant diversion in the midst of the reading of the unusually large number of scientific papers. Dr. Jos. A. White, of Richmond, Va., is president of the Association this year.

All reputable physicians, resident members of the State medical societies of Virginia, North and South Carolina, are eligible to membership, when recommended by a member of the Tri-State Association. Applications should be sent to the Secretary, Dr. J. Howell Way, of Waynesville, N. C.

Randolph-Macon College, Ashland, Va.,

The last of January, inaugurated a course of lectures in hygiene and sanitation. This course is designed to fit the students for good citizenship, as it is hoped to place them in a position to intelligently look after their own health, and to be in position to advise others. The State Health Department has promised its co-operation, and will from time to time have members of the medical profession, especially interested in health matters, give illustrated lectures.

We wish to endorse this enterprise recently undertaken by Randolph-Macon College, and believe were the young men and women in our colleges throughout the State required to take such a course, their influence for good in health matters, would prove most advantageous to the State.

The Graduate Nurses' Association of Virginia,

Which met in Richmond, January 31, to February 3, elected Miss Agnes Randolph, Superintendent of Virginia Hospital, Richmond, president, and Mrs. Charles Eaton, also of Richmond, secretary. During the course of the meeting, many instructive papers were presented, and a pleasant time was enjoyed by those in attendance.

American Gastro-Enterological Association.

The Secretary, Dr. Chas. D. Aaron, Detroit, has issued Preliminary Programs of the fourteenth annual meeting of this Association to be held at Philadelphia, April 19-20, under the presidency of Dr. Walter B. Cannon, of Boston. The sessions will be held at the Bellevue-Stratford.

Dr. William Levi Old, Norfolk, Va.,

Who for the past ten years has been connected with the medical corps of the Virginia Volunteers, has tendered his resignation from the service, owing to the pressure of private business. He was retired with the rank of major, at the time of his resignation being the ranking major in the Virginia service. Dr. Israel Brown, also of Norfolk, has succeeded to the vacancy thus created, with the rank of captain.

Dr. John J. Lloyd, Jr.,

Has been appointed to fill the position as assistant resident physician at the Catawba Sanatorium, which vacancy will be caused by the promotion of Dr. W. E. Jennings as resident physician on the first of March.

Dr. Lloyd is a son of Rev. John J. Lloyd, Archdeacon of Southwest Virginia, and has recently been a physician at the Gaylord Sanatorium, Wallingford, Conn.

Dr. R. S. Martin, Stuart, Va.,

Secretary of the Medical Examining Board of Virginia, has been appointed by Governor Mann as a delegate from Virginia, to the Joint Conference on Medical Education and Medical Legislation, which will be held under the auspices of the American Medical Association, at the Congress Hotel, Chicago, March 1-3.

Dr. Charles H. May, New York, City,

A graduate of the Medical Department of Columbia University in 1883, has been appointed Consulting Ophthalmologist on the fourth division of Bellevue Hospital, New York.

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Original Communications.

SURGICAL TREATMENT OF DROPSY DUE TO KIDNEY DISEASE.*

By G. PAUL LAROQUE, M. D., Richmond, Va.

Five years ago at the meeting of the Medical Society of Virginia in this city, I stated in a discussion on the "Surgical Treatment of Nephritis," that the pathologic process was not curable by any known surgical means and that the operation of renal decapsulation as proposed and extensively employed by Edebohls, had not been successful from the standpoint of the curative treatment for Bright's disease. In this paper I stated that the real indications for the operation were as follows:—"Rapidly progressive or obstinate edema, threatening or actual anuria, total or almost total albuminuria, with a corresponding abundance of tubular casts, renal epithelium and blood cells, impending or actual convulsions, coma or other manifestations of uremia, rarely the eclampsia of pregnancy, labor or the puerperium."

These indications have been pretty uniformly agreed upon and at the present time are fairly clearly stated by most writers on the subject. And yet there is still lacking a proper comprehension of the importance and value of the operation by a large majority of both physicians and surgeons. I would not have it understood by any one that I am an advocate of renal decapsulation for the cure of Bright's disease, for no one really believes that the kidney affected with true fully developed Bright's disease can, by any means, ever be restored to its normal condition. And yet, individuals so affected, constitute a large number of every doctor's patients and are very materially benefited and their lives indefinitely prolonged by intelligent hygienic, dietetic and medicinal treatment. So that as a matter of fact, in actual practice, comparatively few people die directly from the kidney condition but are carried off by some other disease which finds an easy prey in an individual whose kidney functions are thus impaired.

A careful study of the evolution of the pathologic process of Bright's disease shows that during the development of the various phenomena attendant upon kidney degenerations, there are clinical signs sufficiently clear cut to enable us to divide the disease into various distinct stages, and we all know that if complications are forestalled and the lives of such patients can be prolonged by any means, the kidney will eventually pass into a stage of contraction, polyuria occurs and dropsy disappears.

CLINICO-PATHOLOGIC EVOLUTION OF THE DISEASE AND RATIONALE OF THE OPERATION.

Acute nephritis and acute exacerbations of the chronic disease, like acute inflammation in other structures, is associated with pathologic vascular engorgement, round cell infiltration, connective tissue proliferation, and consequent distension of the organ, rendering tense its non-distensible true capsule. As a result, impeded circulation, blood stagnation and consequent impairment of the nutrition to the specialized functionating renal elements (the epithelial cells lining the uriniferous tubules) occur, finally resulting in degeneration—albuminoid, fatty, dropsical, and in some cases, amyloid in character. With this, there occurs squeezing out from the capillaries of serum and blood cells, and these together with the secretory products of the epithelial cells become moulded into tubular casts blocking the tubules, intensifying the impaired vitality and acting as foreign bodies, causing further exfoliation of the lining epithelium.

*Read before the forty-first annual meeting of the Medical Society of Virginia, at Norfolk, October 25-28, 1910.

The kidney of chronic Bright's disease always presents a degenerative process in the functionating epithelial elements of the kidney, sooner or later becoming associated with, fibrosclerotic changes in the connective tissue. The large white kidney of parenchymatous nephritis presents an organ under high intra-capsular tension, not from vascular engorgement (there is diminished amount of blood), but from dropsical infiltration, fatty degeneration, choking of the uriniferous tubules by casts, exfoliated epithelium and detritus; together with vessel wall hyperplasia, connective tissue proliferation and exudative products in the interstitial connective tissue.

The physiologic effect of such morbid changes is renal insufficiency. Clinically this is marked by autotoxemia, hydremia, general anasarca, ascites, hydrothorax, high circulatory tension with cardiac hypertrophy; finally, insufficient compensation and myocardial degeneration, ending in gradual fall of blood pressure to circulatory failure, death being due to this cause.

When the renal process is not too severe and of gradual development, upon cessation of the underlying cause and the adoption of sustaining hygienic, dietetic and medicinal remedies, the degenerative process may be checked and there may ultimately result a physiologic exaggeration or hypertrophy of the remaining functionating renal structure, together with contraction of the newly formed cicatroid connective tissue, until finally the organ becomes transformed into the contracted, shrunken kidney of chronic interstitial nephritis, representing a natural effort to compensate for loss of function and to replace degenerated structures. In this, the engorgement of the organ is considerably reduced from narrowing of the vessels by hyperplasia of their walls and by proliferation of the interstitial cellular elements with subsequent contraction in which the fibrous capsule also takes part and becomes densely adherent. As a result, the intra-capsular tension becomes markedly reduced and the amount of blood within the kidney is lessened in proportion to the impaired functional power of the renal parenchyma.

Clinically, there is, from the sclerotic kidney, increased urinary excretion often to the extent of polyuria, disappearance in great part or it may be entirely, of the edema and other mechanical effects of hydremia, with remittent periods of subsidence of headache and other effects of toxemia. The compensation is, however, never perfect. Renal epithelium, when once positively degenerated, never becomes properly regenerated nor in toto replaced. The watery portion of the urine may filter through the denuded tubules in even excessive amount, but the poisonous organic elements are insufficiently excreted, since the selective function in the remaining epithelial cells is never adequately exaggerated. Such patients are constantly in danger of uremia and this is often the cause of death.

Such, in brief, is the picture of the natural evolution of the pathologic process. Upon slight provocation, however, there will occur acute hyperemia or inflammation with the attendant phenomena of vascular engorgement, extravasation and cellular proliferation, further intensifying the renal insufficiency, and productive of the clinical phenomena of the acute exacerbation of symptoms.

The immediate anatomic effect of renal decapsulation, is the release of excessive intracapsular tension. In cases of diffuse nephritis, the large white kidney of chronic parenchymatous disease, and in the engorgement accompanying acute exacerbations during the course of any form of chronic nephritis, the organ immediately expands upon incising the capsule. This is not so with the contracted, shrunken, granular kidney of chronic interstitial nephritis where there is no increase of tension. There is no doubt coincidently some effect on the sympathetic nerves from traumatism, but this has not been definitely demonstrated.

As a result of the removal of this circulatory resistance (the true capsule) and consequent relief of tension in the organ, there is permitted rapidity of circulation, removal of stagnant blood, and intravascular drainage of certain nephrotoxines and other poisonous material, and partial resorption of inflammatory products. With this, the remaining healthy functionating epithelial cells become revitalized, undergo at least, physiologic if not anatomic hypertrophy, and an effort is made to partially compensate for the degenerated cells. The local bleeding also favors the depletion and drainage process. The physiologic effect is

diuresis. There is increase of urine often to actual polyuria, diminution (at least relative) of albumin, casts, and epithelial cells, and with this rapid subsidence, and complete removal of anasarca, ascites and other effects of hydremia.

The remote effects have been conclusively demonstrated, clinically, experimentally and by a few autopsies in the human subject. There is acceleration of intra-renal fibroid changes, the production of sclerotic kidney; a new connective tissue capsule is formed from the connective tissue cells of the inter-tubular structure and surrounding cellular proliferation. This, like scar tissue everywhere, contracts, becomes dense and immediately related to the renal cortex. It is in large measure devoid of blood vessels, certainly large ones, and shows no intercommunicating anastomotic branches. All the clinical phenomena of a rapidly progressive contracted, shrunken kidney are instituted. Such phenomena become apparent generally within a few months (3 1-2 months—Elliott), after which relapses occur, and death finally ensues. About 75 per cent. of the renal mortality is due to diffuse nephritis (Hall and Herxheimer). In many experimental cases the new capsule has been shown to be completely formed within from eight to twenty days, though for contraction to occur, at least a month is required. (Claude, Albarran, Gifford, Hall, Herxheimer and others.)

Puncture of the kidney and capsular incisions produce a similar effect in relieving tension, though manifestly less marked than complete decapsulation. The damage to the cortex is less severe and the newly formed cicatricial capsule less regular in structure.

With this conception of the pathology of the disease, rationale of the operation and subsequent morbid process, it is manifest that the operation is to be reserved purely for advanced progressive, uncontrollable renal insufficiency —kidney break down—sufficiently severe to threaten life and demonstrably irremediable by less radical measures. Such indications may present themselves during the course of acute or chronic nephritis as rapidly progressive or obstinate edema, threatening or actual anuria, total or almost total albuminuria, with a corresponding abundance of tubular casts, renal epithelium and blood cells, impending or actual convulsions, coma or other manifestations of uremia, rarely the eclampsia of pregnancy, labor or the puerperium.

In some cases operation on one organ is efficient. Double decapsulation is frequently necessary. The unilateral operation should be performed, save when there is doubt that it will be productive of a satisfactory result, in order that the opposite kidney may be available for decapsulation upon a repetition of the indications. In some cases by thus tiding the patient over a few critical months, the natural evolution of the morbid process into the shrunken kidney of interstitial nephritis, may be accomplished. When the result, however, cannot be predicted, it is wise to denude both organs at once. If during the operation, collapse ensues and the patient's condition threatens life on the table or immediately afterward, the surgeon should rest content with the unilateral operation in the hope that improvement may occur.

The technique of the operation is identical with that of nephropexy by the denudation method, save that the capsule may or may not be excised, after being stripped off, and fixation sutures are unnecessary. The tissues are thick on account of dropsy and the kidney is therefore, less easy to find. The edge of the pleura may be depressed by the weight of the hydrothorax, and must be guarded against incision. The wound should always be closed, though gauze drain for the dropsy, in the subcutaneous tissues is useful for the first twenty-four or forty-eight hours.

The operation may be done rapidly under nitrous oxide or light ether or chloroform anesthesia, with the aid of local anesthesia by the infiltration method. Ante-and post-operative treatment must be rigid to the minutest detail, guarding particularly the circulatory apparatus and against pulmonary complications, notably edema. The most rigid aseptic technique must be employed and the water (urine) soaked dressings must be changed sufficiently often to maintain a dry wound.

The subjects are always poor surgical risks. There is always cardio-vascular disturbance, often pulmonary edema and a tendency to pleuritic inflammation; invariably autotoxemia; at least twenty to twenty-five per cent. of all cases present a tendency to nerve degeneration as shown by neuro-retinitis; the digestive apparatus is impaired, the skin

sluggish, liver and bowels non-active and the subcutaneous tissue, infiltrated with dropsy, is ready to invite wound infection and oppose repair.

The operation, while comparatively simple, is, therefore, attended with high mortality, variously estimated at from twenty to forty-seven per cent.

The operation should not be performed until all less radical measures have failed to give relief—should always be regarded as a last resort, and is contra-indicated by impending circulatory dissolution.

I have had the opportunity to operate and to assist in operating on three patients presenting the indications for operation, namely, progressive uncontrollable dropsy, almost total anuria and the other signs of kidney break down, and it is for the purpose of showing that there is really a means of completely and quickly relieving these patients of their dropsy, that I report the cases. In each case the patients had been for months under the care of thoroughly competent physicians who had conscientiously and intelligently employed all known medicinal, hygienic, and dietetic remedies for the relief of dropsy, all to no avail. In these cases the patients were in such desperate condition that it looked as though they would die at any minute from cardiac failure incident to dilatation produced by the disease. Indeed, it was quite a surprise to those of my friends who saw the patients and the operation, that they were able to stand even the slight amount of anesthesia. And yet, in all cases, the operation was followed by enormous polyuria and the dropsy was immediately relieved. I repeat, however, that the operation should in no sense be regarded as a cure for Bright's disease, but purely as a palliative measure to aid in the relief of edema, to eliminate toxic material which is retained as a result of a crippled kidney, and to relieve the work being attempted by a weak heart.

Seven years ago while I was resident physician in the Hospital of the University of Pennsylvania, I assisted Dr. Charles Frazier and Dr. Edward Martin operate upon two such cases referred to them by Dr. James Tyson. Each case presented the indications herein outlined, each was immediately relieved, and while neither was cured of Bright's disease, neither developed edema and both cases were kept under observation for two years, one finally dying of uremia caused by fibroid kidney. One of these cases was reported by Drs. Tyson and Frazier at the meeting of the Association of American Physicians in 1904.

D. M. Case No. 1331, age 43, colored, kindly referred to me by Dr. George Barksdale. About the first part of April, 1909, after having been exposed in the snow, he was forced to go to bed on account of edema of the feet, shortness of breath, indigestion, cough, and the other signs of heart and kidney break-down. He was treated actively and kept in bed from the first of April until he was relieved by operation. In spite of all this, his condition grew steadily worse, the edema becoming so severe as to necessitate subcutaneous tapping 15 or 16 times. The middle of September he was carried to the Virginia Hospital where I saw him the first time. Upon examination I found a very large negro man with gasping dyspnea so severe that he could not lie down, but had to sleep in sitting posture. The thighs measured 28 inches, abdomen 43 inches, right wrist 8 1-2 inches, left wrist 9 inches. The scrotum was the size of the silk hat which he wore. The skin of both extremities and of the abdomen was ruptured in innumerable places, and from these the water was leaking over the floor and bed. His heart was enormously dilated, the apex being diffuse, scarcely visible and located in the middle of the axilla. Pulse was irregular, intermittent and feeble; there was mitral regurgitation and signs of dilatation of the heart, so that his general condition was extremely distressing.

I placed him in bed at rest for 48 hours during which time he passed only 16 ounces of urine each 24 hours. His edema was increasing; the cardiac condition failed to improve.

On September 15th, 1909, I operated upon him. I realized that the man's general condition, especially with reference to his heart, was frightful and that he was liable to die on the table. Indeed, those of my friends who saw him had no idea that he could stand even a slight amount of anesthetic. I made the skin incision under cocaine anesthesia preceded by a hypodermic injection of hyoscine and morphine and with the aid of very light chloro-

form anesthesia, kindly administered by Dr. Barksdale. I was able rapidly to decapsulate the right kidney after which he was placed immediately in bed. The operation took about fifteen minutes and had to be done with the patient in the sitting posture on account of the fact that it was impossible for him to lie down. As soon as he recovered from the anesthetic he voided 16 ounces of urine at one time. The first 24 hours after the operation he voided 107 ounces, the second 24 hours 130 ounces, and the third 24 hours, 150 ounces. I kept him in the hospital until October 4th, when he was free from edema, eating well, feeling well, and voiding 90 ounces of urine every 12 hours. On the 12th of October, I exhibited him at the Richmond Academy of Medicine and Surgery, at which time he was still free from his edema, his wrists measuring 6 1-2 inches instead of 9 inches before operation, the thighs 19 inches instead of 28 before operation, the abdomen 33 inches instead of 43 before the operation.

The patient remained well, doing his work as a preacher, and was enjoying life for about six months. At this time he had a recurrence of his cardiac symptoms, dyspnea, etc., and went to the City Hospital, after which I lost sight of him. I am informed that he died in April, 1910, six months after the operation, the immediate cause of his death being dilatation of the heart. A short time before his death he developed edema of the extremities and lungs, though this was never as severe as before he was operated upon.

The cases all illustrate the immediate effects of the operation. I purposely declined in the last case to decapsulate the left kidney at the primary operation, believing that the unilateral operation would be sufficient for the time being, and trusting that I might have the opportunity to do the operation on the left kidney upon a return of his symptoms. The second operation was not done.*

In conclusion, I would urge that in selected cases after the general medicinal and other treatment has failed to produce relief and where death is threatened from kidney break down, such patients are entitled to the certain relief afforded by the removal of the capsule from the kidney. For while the operation is a purely palliative measure, there are many palliative remedies which must be employed in the practice of medicine and surgery. It is conclusively shown that the removal of the capsule of the large white or acutely engorged kidney will, with certainty, be immediately followed by profuse diuresis and relief of dropsy and other signs of kidney insufficiency.

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* Since this article was written I have had the opportunity to operate on a fourth case (Case No. 1601), Hattie B., a white girl, age 9 years, referred by Dr. John S. Gale, Ivor, Va., the victim of a sub-acute hemorrhagic nephritis of about three months duration. This little girl was enormously swollen, the urine was very bloody, 60 per cent. by volume albumen, contained abundance of casts, hyaline, blood granular and leucocytic. Kidney function, estimated by Dr. E. G. Hopkins, according to the method of Geraghty, showed impaired function to about 60 per cent. of normal. She was voiding from 6 to 16 ounces of urine in 24 hours. She also had an ulcerative stomatitis.

Under light ether anæsthesia administered by Dr. Goad, of the Sheltering Arms Hospital, I made a rapid muscle splitting incision down to right kidney, incised and pealed off the capsule, closed the wound except for a small drainage for 48 hours. In doing this operation I was very ably assisted by Dr. Dalton, resident physician of the hospital. At the end of the third day the œdema had disappeared and she was voiding 40 ounces of urine a day. At this time she took cold, had acute earache and the œdema returned for a few days, but under ordinary medical treatment, purgation, diuretics, she entirely recovered, and now at the end of two weeks the œdema is entirely gone, she is eating and sleeping well and voiding from 45 to 50 ounces of urine in 24 hours. She is now gone home free from dropsy. Just before this little girl was sent nome, about three months after the operation, I catheterized her ureters, so as to make an estimate of the relative amount of urine being secreted by each kidney separately. From the right kidney (operated upon) four drops of urine came through the catheter each thirty seconds, and from the left kidney (not operated on) only three drops appeared every fifty seconds. Phenolsulphonaphthalein, after injection hypodermically into the arm, appeared in six minutes through the right kidney, operated on, and in 11 1-2 minutes through the left kidney, not operated on, thus showing that the right kidney, the one operated on, was doing practically twice as much work as the left kidney, not operated on.

In this case I was aided very much by the kind attention of Dr. A. G. Brown, who managed the case from the medical aspect. I think there should always be a competent medical man associated with the surgeon in the management of these cases, and I am much indebted to Dr. Brown and Dr. Barksdale for their kindness.

THE MODIFICATION OF MOTHERS' MILK.*

By GREER BAUGHMAN, M. D., Richmond, Va.

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The fact that many infants are deprived of mothers' milk and start their life on a substitute can often be traced to the doctor. At college he learns a great deal about the modification of cow's milk but hears very little about the regulation of mother's milk.

The mother is, however, the greatest obstacle to the nursing of her baby. Occasionally this obstacle is absolutely insurmountable. Her social duties, her home duties, her outside work, all interfere in spite of the fact that there may be no physical reason why she might not nurse her baby. If married people can be brought to see that their main object in life is to have children and to rear them in such a way that the children will be better mentally, morally and physically than the parents, and if they can be shown the great advantage that the breast-fed children have over bottle-fed children, then nothing but physical disability will come between the infant and the mother's breast. J. Madison Taylor and Francis P. Deming have recently emphasized the well-known and interesting fact that the infant not only receives nourishment but prophylaxis against disease from the serum of the mother's milk.

In order to understand the problem of modification of mother's milk, it will be necessary briefly to review the microscopic anatomy and physiology of the human breast. The human breasts may be regarded as cutaneous glandular structures. Up to the age of twelve the glands in the boy and the girl are identical. In the male there is a retrogression after this time; in the female they continue to grow and develop until after parturition. There is a marked difference in the microscopic picture of the functionating and non-functionating breast.

When fully developed, the breast is made up of about twenty lobes separated by connective tissue. The lobes are made up of many lobules which are divided into tubular alveoli. Small ducts go from these alveoli to unite others and form larger ducts. Shortly before emptying into the nipple, each duct widens to form a vesicle, the sinus lactiferus. The ducts are lined with simple cubical epithelium except near the termination in the nipple where they are lined with stratified pavement epithelium. The alveolar epithelium during rest is a single layer of cubical cells; at the beginning of secretion, fat globules appear at the distal end and they increase in size.

There are two theories as to the secretion of fat in the milk. Some think that the distal portion of the cell breaks off after undergoing fatty degeneration or infiltration and forms the fat globule while the same cell goes through the same process again. It is a fact that some cells are destroyed and are later replaced by others. The more probable theory is, however, that the epithelial cells select the fat, proteids, sugar, salts and water from the blood and pass them on as a secretion.

Benda describes basket cells between the membrana propria and the epithelial cells of the alveoli. These, he believes, are non-striated muscle cells and their contractions tend to force the milk into the ducts.

K. Bosch has proved experimentally that secretion of milk is independent of the nervous system. He transplanted lacteal glands of animals into their backs and found that these transplanted glands secreted colostrum after the animal was delivered. With extract of placenta and gravid ovary he was able to elicit a secretion of milk in animals and in a few clinical cases.

H. Crower ascribes great importance to the sucking of the nipple as the main factor in setting up the secretion of the mammary gland, and cites numerous cases that show that the mammary gland is, to a certain extent, independent of the genital organs, secreting milk when an infant was allowed to suck even before the terminaton of pregnancy. Mothers can leave their infants, says he, for weeks at a time and then be able to suckle them upon their return.

The only other glands that secrete fat are the sebaceous glands; and while the mammary gland does secrete besides fat, proteids, sugar, inorganic salts and water, still the fact that no other save the sebaceous glands secrete fat at once differentiates fat production as its special function.

Under the title, "The Persistence of Cell Function and Its Bearing on Pathology," Pro-

*Read before the Richmond Academy of Medicine and Surgery, November 22, 1910.

fessor William von Leube, of Wurzburg, discusses a subject that seems to have an important bearing upon the physiology of milk secretion. The underlying principle is that there is a well-defined tendency for each kind of cell to continue its work along certain characteristic lines which are determined for it during its organization and development. This is shown by the fact that many different kinds of stimuli acting on a cell will all cause the same effect; thus, the mucous glands secrete mucin when stimulated by heat, cold, toxins, chemical or mechanical stimulants. The difference in the effect produced by the stimuli is quantitative rather than qualitative.

The problem of modification of mother's milk reduces itself to the proposition of so adjusting the stimuli to milk formation that the infant will thrive upon it. These stimuli are intervals of nursing, general exercise, massage, nervous condition and anxiety, food and drink, the baby's suction, and drugs. Some of these stimulate the retardation of milk secretion.

We must first know what normal or perfect mother's milk is. There is no perfect milk that will suit all cases. One infant will thrive on a milk that will retard the development of another. For that reason it is well for us to determine the normal milk for a particular infant by examining the mother's milk while the infant is thriving. But often we do not see the case until the infant is doing badly, so that it is necessary to have some sort of standard. This is obtained by taking the average of the milks upon which a number of infants seem to be thriving.

The average of the constituents of my cases, where the infants have been doing well, irrespective of the age of the infant (it is generally believed that the milk should remain about the same during the entire period of lactation) has been

Specific gravity	1031
Fats	4.05
Proteids	4.22
Sugar	4.33
Salts	.20
Total solids	12.80

The variation in these averages has been specific gravity, 1029-1036; fats, 2.9-5; proteids 3.55-5.20. The averages are here rather higher than those of other observers. My cases have been in private practice and all of them have been native-born, white women.

If the infant is not thriving, we must determine in what particulars it varies from her normal; or, in the event we do not know what her normal is, from the average that has been determined by our own experience or that of some one else. The variation will be in quantity, or quality, or both.

Quantity.—E. V. Davis, of Chicago, has worked out a very useful system for determining the quantity of milk that the infant is receiving. The infant is weighed before and after nursing, and the difference in weight is the amount it receives at a nursing. We must remember, however, that a fluid ounce of milk weighs more than an ounce. The weight of milk increases as the specific gravity increases. The weight, for instance, of an ounce of milk of the specific gravity 1031 is 1.085 ounces. When we recall that the capacity of the average infant's stomach at birth is a scant ounce; at four weeks, 2.35 ounces; at six months, 5.71, etc., we see an additional reason for wanting to know the amount taken at each feeding. The average infant is sufficiently intelligent to know when it has enough. The problem is usually not to reduce the quantity but to increase it.

Quality.—The constituents of mothers' milk that vary materially and interfere with the nourishment of the infant are the fats and the proteids; the sugar and salts remain very constant.

We will now consider the methods of modifying milk that have been found to disagree with the infant.

Intervals of Nursing.—Rotch and many other observers have reported that the shorter the intervals between nursings the higher the specific gravity of the milk. When the intervals are lengthened the specific gravity is reduced. Simply by changing the intervals of nursing we are often able to make an infant thrive upon a milk upon which it was doing very badly before. We usually find that the intervals of nursing are very irregular and too close together, unless the mother has been carefully instructed beforehand. Most of the infants that are doing poorly are getting milk that is too much concentrated. Case No. 1 illustrates the effect of shortening the intervals of feeding. The infant here had icterus and was not gain-

ing in weight until the mother's milk was modified.

General Exercise.—The care of the infant weighs so heavily upon most mothers that they do not take enough exercise. This lack tends to increase the proteids. One of the most prompt and efficient methods of reducing proteids is to make the mother take outdoor exercise. If that is not possible, then carefully directed gymnastics at home may be resorted to. The most useful sort of indoor exercises to the mother are those movements that tend to strengthen the abdominal muscles, which have been stretched during pregnancy and labor.

Massage.—General massage, just as exercise, reduces the proteids. Massage of the breasts tends to increase the flow of milk. Besides, it is a very useful aid in opening up the milk ducts that have been closed with detritus and epithelium or where the over-distended acini will not expel the milk into the ducts.

Nervous Condition and Anxiety.—These are the most difficult to handle, and they have the most influence upon the character of the milk. Case No. 2 illustrates the influence of a nervous mother and one anxious because she could not nurse her baby. I tried special diet, massage, gymnastic exercises, shortening the nursing interval, but none of these brought the milk into the condition where the infant was thriving. There were reasons why I thought it best to keep her in the house. I assured her that as soon as she got outdoor exercise her milk would be perfect. I told her that she could nurse her baby. By constantly making these suggestions, I gained her confidence; and, sure enough, her milk improved and the fat increased as soon as she began to take outdoor exercise. Her baby is now a fine, big girl, and it nursed the mother all the time until it was put upon solid food.

Food and Drink.—Probably the best stimulant for the whole lacteal secretion is proteid food. The nitrogenous foods seem to stimulate more particularly the production of fats. According to Hall, proteids furnish the material necessary (a) for the rebuilding of cell protoplasm; (b) for the direct proteid katabolism; (c) for the deposit of reserve fats. Probably the reason why the proteids stimulate production of fats in milk is because the epithelium of the lacteal glands is specialized as to fat production. Decrease in proteid intake reduces the fat. Case No. 3 illustrates the increase in fats, the proteids remaining about the same upon a diet rich in proteids. Cases Nos. 4 and 5 illustrate reduction of fats in milk by cutting out the proteids from the diet. Both of these were cases of fatty diarrhea which improved when the fats were reduced. Increase in fluids increases the milk; decrease in fluids increases the specific gravity.

The Infant's Suction.—This or some other irritant seems necessary to the production of a uniform and regular flow of milk. It does not alter the character except when the nursings are irregular—too often or too great an interval intervenes.

Drugs.—The only drug that I have ever found to act as a galactogogue, except those that in a general way improve the whole body, like tonics, is muriate of pilocarpine. I give in water 1-8 to 1-2 grain at night, when I have tried other means to increase the flow of milk without success..

Analyses of Mothers' Milk Referred to in the Text

Case I

Date	7-22-10	8-1-10
Age of Baby	15 days	25 days
Reaction	Alkaline	Alkaline
Sp. Gravity	1028	1030
Fats	1.	3.
Proteids	1.57	3 55
Sugar	4 35	4 35
Salts	.20	.20
Total Solids	7.12	11.10

Case II

Date	5-25-09	6-4-09	6-15-09	8-25-09	11-2-09
Age of Baby	22 days	32 days	43 days	114 days	203 days
Reaction	Alkaline	Alkaline	Alkaline	Alkaline	Alkaline
Sp. Gravity	1032	1033	1029	1029	1032
Fats	1.	2.	1.50	4.50	5.
Proteids	3.75	4 15	3 07	3.55	4 4
Sugar	4.35	4.35	4.35	4 35	4.35
Salts	.20	.20	.20	.20	.20
Total Solids	9.30	10.70	9.12	12.60	13.95

Case III

Date	6-15-10	7-22-10
Age of baby	29 days	66 days
Reaction	Alkaline	Alkaline
Sp. Gravity	1034	1032
Fats	2.2	5.
Proteids	4.46	4.35
Sugar	4.35	4.35
Salts	.20	.20
Total Solids	11.21	13 90

	Case IV		Case V	
Date	11-29-07	12-16-07	10-15-06	10-29-06
Age of baby.	30 days	47 days	122 days	136 days
Reaction	Alkaline	Alkaline	Alkaline	Alkaline
Sp. Gravity.	1036	1035	1032	1030
Fats	3 6	1 6	4.	2.90
Proteids	5 20	4 6	4.25	3.56
Sugar	4.35	4.35	4.35	4.35
Salts	.20	.20	.20	.20
Total Solids.	13 35	10.75	12.80	11.01

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26 *North Laurel Street.*

THE CARE AND TREATMENT OF CRIPPLED CHILDREN.*

By R. TUNSTALL TAYLOR, B. A., M. D., Baltimore, Md.

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Have you ever noticed in your daily walk how many people are misshapen, have bad carriages or are actually crippled or deformed? If not, do so just as a matter of interest or curiosity and you will be surprised at the number seen. The attention has but to be called to the prevalence of deformity to open ones eyes.

Thus, in the three hospitals with which I am connected, at the Crippled Childrens' with 50 beds, we see over 1,500 cases in hospital and dispensary a year; at the University and St. Agnes, wards of twenty beds, each are full practically all the time. At the other hospitals many such cases also seek help.

At the Childrens' Hospital, Boston, some 3,000 are treated annually in the wards and dispensary.

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At the Ruptured and Crippled, New York, one frequently sees over 100 a day seeking aid in the dispensary. The New York Orthopædic has very nearly as many while the Roosevelt, Bellevue, Post-Graduate, St. Mary's and several other Hospitals there, have large special orthopædic clinics.

So, in Philadelphia, at the University of Pennsylvania, the Jefferson, the Widener School and the Home of the Merciful Saviour, one sees large numbers of these cases.

In 36,885 school children abroad who underwent medical examination, 14 per cent. were found to have lateral curvature of the spine; one child in every seven will present this one deformity, if we may judge from these statistics, leaving all other deformities out of consideration.

As a matter of coincidence on the train coming here, five persons sat in front of me—one of whom had humpback, one hip disease, and one a deformed foot. Thus, it will be seen that the Cross many of the human race have to bear is the Crutch.

Let us turn now to the nature of the diseases we have to care for and treat.

BONE TUBERCULOSIS.

1. *Spine.*—The spine may be involved in any region from the head to the pelvis, and lead, if untreated, to the deformity of humpback.

In the acute stage, no matter where the tubercular process in the spine is, the patient must be fixed in such a way that the diseased region cannot move but be allowed to heal. This often requires many months, preferably on a porch or by an open window, in a tent or shack, as the fresh air treatment is equally important in all tubercular bone cases as in the pulmonary form.

When the acute stage is passed a brace is put on to fix the spine as one would treat a fracture with displacement or dislocation and similarly a plaster-of-paris jacket is only used if the disease is below the middle of the back. The child requires months of watchfulness and treatment, but these cases are more often than not, saved from *any* deformity (and this the most unsightly of all) and entirely cured. The habitual use of tuberculin weekly in all of our tuberculous cases has helped attain the end we have in view.

Neglected cases or those that have been unwisely operated on previously often present fis-

tulous tracts opening on the surface of the body discharging pus from the bone and the temperature in these cases runs high from secondary infections and it is this that may cause the death of the child unless checked. The bismuth paste injection and the modern vaccines seem to have a favorable influence on this condition. Some of the spinal cases, especially those with disease in the upper portion, have paralysis of the legs and lower portion of the body, and this adds additional months of treatment in attaining a cure. Twenty-five per cent. of orthopædic cases are spinal tuberculosis.

2. *Hip.*—Tuberculosis of the hip requires rest in bed and immobilization, as does the spine. In addition, months of treatment are needed by means of weights pulling on the leg to overcome the injurious spasmodic contraction of the muscles. When the acute stage is passed, a brace to continue the pull on the leg or a plaster-of-paris cast to fix the joint are required and the patient walks with crutches and a high shoe on the foot of the well leg.

About 10 per cent. of the cases are tuberculosis of the hip. In all neglected bone cases fistulae and fever may appear. Malpositions of neglected healed cases often require division of the bone to make the legs parallel and lessen the severe limp of the stiff joint.

3. *Knee.*—The knee is less frequently affected than the spine and hip and requires fixation and traction as they do. The patient should bear no weight on it. In the extremities the rubber bandage to produce congestion at the point of disease is used with benefit. The suction cups over sinuses, should they be present, are used for the same purpose.

4. *Ankle, Elbow, Wrist and Shoulder.*—These points are much more infrequently affected and the plaster-of-paris method of immobilization has proven most efficacious.

The knife cannot be employed in tuberculous joints in children to remove the disease as in adults, as the operation retards or prevents the further growth of the limb.

In the acute stage tubercular bone disease requires the most unremitting skilled watchfulness, and this is best attained in the specially equipped hospital, or in the homes where special nurses can be had and sunny living porches are available.

LATERAL CURVATURE OF THE SPINE.

This condition is perhaps next in frequency to tuberculosis of the spine and often the resulting deformity of untreated cases is frightful. Perhaps almost 25 per cent. of our cases present this condition. They occur more often from muscular weakness or some congenital malformation of the spinal bones, ribs or pelvis.

These cases require special corrective gymnastic exercises, massage and corrective plaster jackets to hold the spine straight.

The treatment in the main is quite the opposite of that used in spinal tuberculosis. The cases with this affection together with the round-shoulder cases are treated by the gymnast and masseuse in the gymnasium of the Hospital.

INFANTILE PARALYSIS.

This dreadful scourge that attacks healthy as well as delicate children, usually in the summer, leaving them with more or less paralysis of the limbs or spine, more often the legs alone, forms another 20 per cent. of the cases seen.

Much improvement can be gained early by massage, baking, electricity and proper braces. Later operations for tendon, muscle, or nerve-transplantation must be resorted to or stiffening of such joints as have no muscular control. These procedures must of necessity be done in the Hospital.

In some children and many adults cases of rheumatoid arthritis and osteo-arthritis, formerly called "rheumatic gout," are seen, and modern methods accomplish much by rest, fixation, baking, hygienic out-of-door life, restricted but nourishing diet, but little medication and later massage and passive movements.

Large numbers of cases of flat feet in adults and children present themselves for operation or exercise and the application of proper prescribed shoes.

Club feet, which soon after birth may be corrected by manipulation and plaster casts, later require more or less extensive operations and the application of suitable braces or shoes to effect a cure.

Many cases of fractures and dislocations are brought to this Hospital, where the preponderance of troubles are in the bones and where X-ray examinations and records throw much light on the exact nature of the injury and means and facilities are at hand for cure.

Bow-legs and knock-knees we correct in all cases by operation as quicker and more satisfactory than braces, and the services of the pediatrist are called in to correct the malnutrition and improper feeding in these cases of rickets.

Congenital hip dislocation, which the Lorenz operation helps in some cases, in others requires mechanical or open operative treatment to get good results—a discouraging condition at best from the defective nature of the components of the joint—as after an apparent perfect reduction of the dislocation the bone will slip out of place again later on, but with modern methods results are improving progressively. Wry-neck, birth palsy and obstretical paralysis often require operation and after-treatment of massage and electricity to attain good results.

The plastic surgeon is called upon to operate on deformities and defects due to burns and disease, cleft palate, hairlip, and like conditions, and the results are most gratifying.

The care and treatment of crippled and deformed children is of great economic and sociological importance aside from its public health and humanitarian aspects, and should form an important element in the make up of the State Aid and Charities of every great commonwealth, along with the war on tuberculosis, of which it forms a part, the care of the blind, the deaf, the dumb, the insane and feeble-minded. It is of secondary importance to none of these.

THE ECONOMIC STANDPOINT.

In speaking of the treatment and results in these cases, I may say that only in the rarest instances is there any justification for the term "incurable cripple," except when neglect of the child has enabled the causative disease to gain such headway that repair is impossible. This neglect is due to tardy diagnosis by the family physician or indifference on the parents' part in having thorough treatment. We may say that deformity can be prevented and corrected in the vast majority of early cases, or so far improved that these individuals are made able-bodied wage-earning citizens and not permanent burdens to their family, or wards upon the community in which they live, which would have been the case if neglected; therefore, the outlay at the onset converts invalids into wage-earners.

THE SOCIOLOGICAL IMPORTANCE.

Let us consider for a moment the case of a poor mother with a child afflicted with tuberculosis of the spine, the disease causing humpback. Probably the husband died of pulmonary tuberculosis. Let us suppose she has other children; what can she do as a wage-earner unless she neglects the suffering child or leaves it to the care of others? Thus, such a household is disorganized by the crippled child, when no provision is at hand for philanthropic care. Such cases should be provided for in an institution for their care and treatment.

Take the case of a mother whose mother-love is so strong she feels she cannot be separated from her child, or who thinks her child cannot be separated from her: the child must be neglected or her husband or other children and the household must suffer in consequence, if she goes to the hospital with it. Such a mother needs to be advised and assured by the sociological worker or priest or minister. As a matter of fact, children are happy, as the pain is relieved in the hospitals. It is only necessary for one to visit the hospitals to see. Then can mothers realize, by their unselfish sacrifice, they are providing for the child's future.

Of minor consideration is the annoyance, or aroused sympathy or superstition in regard to "natural impressions," etc., existing in a portion of our communities at the sight of a cripple. If the hospital lessens deformity, it helps this portion also.

THE PUBLIC HEALTH ASPECT.

Between 50 and 75 per cent. of the cases of deformity seen are due to tuberculosis of the bones or joints. Of these, three-fourths are the children of parents suffering with pulmonary tuberculosis, or who have died of it, and from whom the patient is infected. These cases, if the disease is unchecked by treatment, have gradually increasing bone destruction, with the formation of abscess and fistula, which discharge pus through the skin, not for days and weeks, but for months and years. Although the bacillus tuberculosis is hard to demonstrate in this pus, still by animal injection and careful cultural methods it is shown to be present; so that these children with their pus soaked clothes are spreading the infection in turn, if scientific precautions are not taken.

THE HUMANITARIAN SIDE.

Is it necessary that this should be touched upon? It goes without saying what a boon sound health and bodily function means to us all. How often have visitors to our hospitals said "Thank God, all my children are straight and strong." This is the parents' point of view. How about the child's? Have you ever seen a little paralyzed boy sitting on a front step watching other children running and jumping in their play, while he can only feebly tap his foot on the step in imitation and with longing eye and aching heart craves to be able to do as they are doing? Or have you ever heard of how the crippled child at school is made the butt of, by the healthy children and called "Hippity Hop" and such names, and is not equal to his fellows in activities and is more liable to injury? Thus, sensitiveness is developed until later on even morbidness may be a characteristic from the mental anguish that they are not and can never be like other people.

To this may be added self-consciousness, in many instances unwarranted, with a feeling that everyone is noticing the defect. On the other hand, we often see deformed people with the most wonderful character, possessing Christian fortitude to a marked degree. This is a result of innate goodness, to bringing up or to circumstances in life requiring the development of unselfishness.

How best can the care and treatment of the crippled and deformed be accomplished? Such a scheme must cover the care of the acute, convalescent and chronic cases, and an institution for the greatest good must have perfect equipment and must provide in one plant, preferably for economy, a dispensary, a hospital, a convalescent home, a kindergarten and school in which latter not only the primary and grammar grades may be taught, but useful trades and occupations as well. The chronic cases may readily be taught with the convalescents, so that they may be wage earners and resourceful. Of the useful occupations may be named knitting, crocheting, sewing, dressmaking, embroidery, lacemaking, flowermaking, weaving with looms, music, stenography and typewriting, printing, basket and broom-making, chair caning, pyrography, not to mention bookkeeping, telegraphy, carpentry, silver and goldsmithy, cabinet work and draughtsmanship. A plant of this magnitude is necessary on account of the insidious nature of the causative disease and the prolonged treatment and after-treatment necessary to effect a cure. These children being unable physically to compete with the healthy children in other schools and on account of their inability to go back and forth to school must be trained mentally in a special school. The hospital should be in conjunction with the school, as the adjustment of braces, care of wounds and general treatment is often necessary for both the convalescent and chronic as well as for the acute cases.

Such a plant should be in the suburbs for the purity of the air, for out-of-door treatment, and on a trolley line. The dispensary may or may not be in town depending on the accessibility of the hospital, so that the greatest good will be done to the greatest number. For 15 years we have run such a plant in a very small way with some 50 beds, and in the summer close our city wards, and open those in the Blue Ridge mountains in Western Maryland for the climatic effect, notably on those suffering from tuberculosis of the bones and joints. These are cared for in tents or special shacks.

Beginning with nothing, and with many "Doubting Thomases", as to where the money was to come from in our Board of Trustees and Managers, we are at last by the strictest economy running on an even keel, as far as current expenses go; but the work is growing to such an extent and our quarters are so inadequate and illy adapted for the work, we are looking and striving for another surprise for the "Doubting Thomases" in the way of some suitable land, proper buildings and more endowment from one or more of those who love little children and have pity in their hearts for their suffering. I do not feel I exaggerate in the least when I say there are at least 300 cases on our lists whom we have not room to admit.

It is needless to say that a general hospital is the most hopeless place for such work as that I have outlined, as the children's ward is subordinated to all the rest, and the beds cannot be taken up for such tedious cases.

With these facts before us, is it not our duty to perfect our methods, and see to it that we *do* give the best care, treatment and training to the crippled and deformed?

Should not the philanthropic avail themselves of such an opportunity to make such an investment for good, and respond to the appeal of these little ones to give them not only "a healthy mind in a healthy body," but a healthy body with a peaceful mind?

ADDITIONAL NOTES.—Since the above paper was read the philanthropy of James Lawrence Kernan, the veteran theater manager and hotel owner, has made possible the accomplishment of the care, treatment, and education of large numbers of the crippled children of Maryland, the South and adjacent States by his splendid gift to the Hospital for the Relief of Crippled and Deformed Children of Radnor Park—a colonial suburban estate of some sixty-five acres with large mansion and a generous endowment. He has also become a trustee of this institution, valued both for his great child-love and business ability, and the institution will bear in future the name of the James Lawrence Kernan Hospital and Industrial School of Maryland for Crippled Children. The present hospital will be a dispensary, and new buildings will be erected at Radnor Park on colonial lines as needed as soon as possible.

2000 *Maryland Avenue.*

PHYSIOLOGICAL ACTION OF CERTAIN ELECTRICAL CURRENTS.*

By CHARLES M. HAZEN, M. D., Richmond, Va.

Professor of Physiology, Medical College of Virginia; Electrotherapeutist to the Memorial Hospital.

It is without apology that I approach the discussion of electrotherapy, although to many physicians and surgeons the subject is almost tabooed, or, at least, relegated to the department of suggestion and physic effect. The history of medical electricity to those who are acquainted with it, and the results obtained by those who are competent to practice it, are a sufficient argument in its favor.

In discussing the above title, I shall limit it to medical application, and leave to one side such lines of work as are surgical, e. g., electrocauterization, electrolysis of tumors, etc., and shall maintain its importance in metabolic and nervous diseases, in the study and treatment of which it is a foundation stone.

In the older literature, the use of galvanic and faradic currents have their well-established place, and the good results of these currents, properly used, cannot be doubted. They have persisted as a *sine qua non* in diagnosis. The sinusoidal current, as derived from the old-fashioned hand electromagnetic, is one of the best emergency instruments for artificial respiration or in hysteria, and in its later development has a field of usefulness.

The physiological effect of these currents, the galvanic, faradic, sinusoidal, is decidedly limited by their low voltage; and this is one, though not a chief, reason for the supposed inefficiency of electrical treatment as ordinarily understood.

The voltage of a current is the electromotive force comparable to the "head" of a stream of water. One reason why high voltage is best is that the resistance of the body to electricity is more readily overcome. The other and more important reason is that it has a better physiological action.

Our knowledge is limited as to the exact relation of electricity to cell-activity. Electrical currents are manifested in active and in injured tissues; but that "electricity is life," or that "nerve force is electricity" is by no means true. Neither is the animal body or the cell an electrodynamo—the *thermodynamic* theory of life being that which must be considered by every argument the correct one.

Neither is any importance to be attached to the vague ideas so often advanced about various kinds of vibration and their relation to life. If molecular vibration in the cell is the basis for electrical effects, at least we do not know it and cannot prove it; and electrochemical conditions inside and outside the living body do not justify this assumption.

We have in this discussion excluded electrolysis as an electrotherapeutic method; and I think we are justified in excluding electrolysis as a physiological effect. This is an important point, because by many authors the production of ozone in the tissues is emphasized as one of the great results of the high-voltage currents. One answer to this is that at the same time, nitrous oxide is developed, which, although it might, as is claimed, have antiseptic effects, at the same time would most certainly be deleterious.

As far as my observation and experience go, it seems far better to simplify our ideas about the physiological action of electricity and conclude that, for reasons unknown and perhaps undiscoverable, *electricity is one of the most suitable artificial forces for the stimulation*

*Read before the Richmond Academy of Medicine and Surgery, December 13, 1910.

and regulation of cell activity; we are here comparing it with other forces, such as drugs, heat, light, radiation and mechanical vibration.

The above conclusion as to the physiological action of electricity is the cornerstone of our structure of electrotherapy. From this standpoint we can examine results, compare currents and methods, and work out a rational procedure.

Since the development of the static machine and the high power transforming coils, it has become evident that the balance of therapeutic value is in favor of high voltage currents. These currents are, in the ordinary nomenclature, the static platform insulation, static wave, static induced, and static spark and spray; the high frequency spark, spray, vacuum tube, autoconduction and autocondensation. These names can be improved upon in behalf of a better description and classification.

The application of the above currents is the task of the modern electrotherapeutist. There is no hope or expectation that they are panaceas or that they will displace other methods that have proven valuable, such as drug treatment, hydrotherapy, etc.; but it is found that they are in certain cases specific, in others adjuvant, in others of no apparent use, and sometimes contraindicated.

Going back to the dictum as to the stimulative and regulative value, the continuous unipolar static current—"static insulation"—is of value when the indication for the patient is general stimulation and regulation. The current permeates every tissue and cell of the body, stands the hair on end, warms, produces perspiration, raises blood-pressure, augments circulation and respiration; applied to a particular part, that part is especially stimulated and regulated. There is a general restoration of balance and as a rule, rest, quietude and sleep are the natural results. Such effects are plainly invaluable in nervous and metabolic disturbances.

The continuous, bipolar static current is, so far as I am aware, not mentioned in literature nor used by other operators than myself. It has been under experiment and trial for about two years and is one of the most valuable. I take this occasion to announce its method and applications.

What I have called the unipolar static current is applied with one plate connected with the chair of the patient or some part of his person; the return current to the other pole is through the air. The bipolar current is applied by two electrodes in contact with the patient, one from either pole. This is nothing more than the galvanic method, substituting the high-tension static current for the galvanic; and, as a rule, where in well established lines of treatment you read galvanic, you may safely and with far better results use continuous, bipolar static.

The effect of the galvanic is in many conditions valuable, but mild. The bipolar continuous static is much more effective on account of the higher electromotive force

There are some mechanical advantages about this current; the metal electrodes do not have to be covered with sponge or cotton or moistened. On the other hand, the static machine sometimes loses its charge while the current is being given, especially the Holtz machine.

Without discussing in full the applications of the current, it may be said in illustration of its use that it is the great treatment from an electrical standpoint for nerve inflammations, such as sciatic and other neuritides, and nerve degenerations, such as occur in anterior poliomyelitis.

By way of caution, I would say that I have not so far as a rule, given this bipolar current in full to infants, but modify the treatment by using one pole with return through the air, and still further modify it by having the nurse hold the child and thus get a part of the dosage. The results in a series of infantile spinal paralysis cases have been noteworthy.

The bipolar interrupted static current—"static induced"—may be mentioned next. It resembles, but surpasses in value the faradic current, and is used similarly for diagnosis and treatment.

Unipolar interrupted currents, with the variations which may (as I believe) be correctly included under this head, embrace every spark and brush method, whether commonly known as static or high-frequency. It should be said, however, that short and extremely rapid interruptions carry with them a certain amount of continuous current, and this is particularly true of static brush, vacuum tube and high-frequency discharges in general. All

these interrupted currents are oscillatory, since the patient, the Leyden jars, coils of wire or other condensers are in circuit and are continually charged and discharged. Practically all of these currents are especially applicable to metabolic derangements. They lower blood-pressure—a beautiful illustration of the *regulative* effect—which I have affirmed, since high blood-pressure is, generally speaking, due to irregular metabolism.

Further than the general lines above indicated, it is impossible to testify in this paper the variations in method and application of these currents.

In conclusion, I regard the foundation principle of electrotherapy to be the stimulative and regulative power of electricity upon cell-activity.

Its great application is to derangements of metabolism and of the nervous system.

The high tension currents are conveniently classified as

1. Bipolar continuous high-tension,
2. Unipolar continuous high-tension,
3. Bipolar interrupted high-tension,
4. Unipolar interrupted high-tension,

The last including high-frequency currents* in their many varieties of methods and applications.

Memorial Hospital.

IGNORANCE.

By LEONARD W. ELY, M. D., Denver, Col.
Editor *Colorado Medicine.*

The panacea for all modern ills is education. Would we put the ballot into the hands of the people? Educate them to enable them to use the privilege wisely. Will we improve the hygiene of the community? Educate the masses. Carry on a vigorous propaganda. Spread the truth far and wide. Invoke the aid of the press. The medical profession has been exclusive, didactic. Let it take the public into its confidence, and all will be well. Education undoubtedly is a good thing, but it has its dangers. With it goes the pride of intellect, the consciousness of ability to choose the right, and in the instance of medicine, no error could be greater. General education no more fits the public to judge in matters medical, than in the construction of a bridge or in the building of a railroad. The only safe attitude for the laity is one of reliance on authority and an abnegation of the right to judge. The boast of our homœopathic brethren for years has been that they represent one-half of the wealth of the community, and the boast has not been a vain one. Never contributing one atom to medical knowledge, followers of a worn-out theory of medicine, which few of them really practice, they draw their patients from the educated and from the wealthy. Osteopathy, Eddyism, faith cures, esoteric religions, minister not to the poor but to the rich, to the cultured. With every step forward we make, new laggards arise—denying, ignoring, protesting. Society women, litterateurs, school teachers become self-constituted judges of vaccination, bacteriology and vivisection. They do not believe in these things; the germ theory "does not appeal to them." They besiege our legislative halls, and would hamper progress by restrictive laws. Authority means nothing to them. Possibly it would be wiser to educate the public to rely on constituted authority, rather than to attempt the impossible task of judging every question of right and wrong, as it arises. Let us flatter and argue less, and really teach more. Let us explain the utter impossibility of the attempt to decide by personal experience, the truth or falsity of every cult and of every system of healing. Most of what we ourselves know of medicine, we take on authority. We may, after years of training, do a little original work and find out something for ourselves—add a humble mite to the store of knowledge—but we are all more or less followers of recognized authority. This is the attitude we should teach the laity, not to constitute themselves judges of every medical question, but diligently to seek where good authority lies, and blindly to follow it. When we do that, we shall not be compelled to defend ourselves against every quack system, and to expose every quack medicine. All the present anti-vivisection agitation may be ascribed to our attempt to teach the people things they are not fitted to learn.

Sometimes one wonders whether medicine is merely a matter of country and climate, whether as we progress and spread out we do not really degenerate at the core, whether every ad-

*Bipolar high-frequency applications are an *apparent* exception.

vance does not open up the gulf between those who know and those who will not learn, whether all these queer systems of medicine are not the outward and visible sign of our national characteristics, and whether in the end we shall not return to the "medicine" and medicine-men of the savage tribes who inhabited the land before us. Some keen observer has said that we were slowly but surely reverting to their physical traits, their dark skins and smooth faces. We should not try to cajole, excuse or explain. We say to the public: "This is the way, walk ye in it." If they will turn aside and will practice incantations to exorcise the evil spirit, we shall be left without an audience, and scientific medicine will cease. After all, the populace will get what it wants in spite of laws or with them, and what it wants will depend, not on intelligence and education, but on what we are wont to call common sense, "horse sense." Was ever greater fallacy formulated than that of the *vox populi?* Truth prevails not by will of the people, but against it. He who promulgates it must step warily for fear of the stake or the cross, or else must drive the people by fear. This, of course, is heresy, and outside of a medical journal we must not hint that we know what is better for the people than they know themselves, but it will keep us from discouragement when we read something like the following:

"The medical profession may be roughly divided into two classes: First, those practitioners who prey upon the misfortunes of suffering humanity and bleed their patients for all they can be persuaded to give up. Second, physcians who conscientiously practice the errors they have learned in medical colleges. The latter class do far the most harm, because they are greatly in the majority.

"For physicians as a class I have a high regard. It is, or should be, the noblest of all professions. I am proud to include a number of physicians among my friends. For 'regular' medical practice I feel profound aversion and contempt. I presume the 'regulars' entertain the same feeling in regard to my views. It is their privilege. However, they should remember that I have good authority for my doctrine, for over a thousand years ago Hippocrates, the Father of Medicine, declared: 'Nature cures, not the physician.'

"In an old comedy, which used to delight our forefathers, the hero, Felix O'Callaghan, defines the practice of medicine as 'the art of amusing the patient while nature performs the cure.' In that sentence, the dramatist (unwittingly, perhaps) embodied a truth. Here is another rather neat definition of medical practice: 'Putting drugs, about which they know nothing, into stomachs of which they know less.'

"In many respects the profession of medicine resembles the priesthood of the Middle Ages. Like the priests, the doctors seek to keep the people in ignorance and to scare them in order that their prestige—and their perquisites—may be maintained. The entire doctrine of contagion, infection, epidemics, and quarantine is founded on superstition. The political doctors are now seeking more power in a Department or Bureau of Health. In this they are being aided by a misguided 'Committee of One Hundred,' composed of laymen. I should regard the establishment of such a bureau as a national calamity. While the doctors are thus organizing, it is about time for 'laymen' to do a little organizing for their own protection."

This is not written by an uneducated clown, nor taken from a yellow journal. It is from a periodical whose circulation is almost exclusively among the educated and well-to-do, and whose editor in private life is a refined and cultured gentleman with a love for animals and flowers and birds. He is obsessed with an antipathy to scientific medicine and all that it embodies. Gentle and courteous in his ordinary dealings with human beings, when caught in falsehood or slander of medical men he will not admit his error. It will not do to call him a fool, for on most subjects he is rational, nor to denounce him as a liar, for ordinarily he is truthful. He and his kind present a problem for us. While we are "educating the people" at the expense of much labor and money, his journal appears regularly every week, and the public, paying ten cents to be amused, is regularly regaled with the latest anti-vivisection horror, or with a criticism of quarantine by some society woman or "thinker."

Certain worthy persons, lay and medical, have recently awakened to the havoc that venereal diseases are playing with the human race. They organize, meet, deliberate and resolve that the social evil must cease. Here is a deep-rooted plague that has tormented us for many centuries, that made the Psalmist cry out ages ago that his loins were filled with a sore disease, a plague that has baffled all efforts at repression, because its roots spring really from the deepest passions of our nature. These stern facts do not daunt our brave reformers. The monster may be slain if we but have the weapon forged, and our weapon, our keen-edged Escalibor, shall be Education. The young and innocent mind must be instructed in all the bald, revolting details of sexual matters and the disease resulting from illicit connection, and, Presto! venereal disease will cease. Were

we not obsessed with this idea of education, so preposterous a claim would never gain more than a first hearing. As it is, there is little more than a silent deep-rooted instinct opposed to it. Hardly a voice is raised to point out that it is knowledge of evil that first draws the attention of the young to their sexual functions and leads them astray. Will no one rise up to say that medical students, grown young men, who are gaining their first thorough education in sexual matters, are not always models of continence?

It is our duty to investigate the "social plague," and to gather all the reliable data possible, to approach the problem in a scientific spirit, but it is not our duty to affront the innocent mind of the young with the filth that we must wade through. What growing boys and girls need in this is not education, but discipline—education, perhaps, in the abstract principles of purity, decency and continence but no more.

We have neglected in the past our duty of educating the laity in the way we should by personal education of the patient by his medical adviser, and now realizing vaguely our deficiency, we call in the yellow press and the sensational magazine to do our work for us. It is no wonder that the public, instructed by these philanthropic agencies, makes grotesque errors in the effort to protect itself, and balks the attempt to establish hospitals for tuberculous patients. Old medical ethics were founded on common sense, and it is true now as it was true formerly, that any medical man who is unable to get his professional brethren to adopt an idea, and who resorts to the lay press, has a very poor idea to promulgate. To resort to the lay public for support argues generally weakness or fraud.

440 *Humboldt Street.*

A PLEA FOR THE TRAINED NURSE AS AN ANESTHETIST.*

By ALICE LOUISE BRUTON, R. N., Norfolk, Va.

Graduate of the Hartford Hospital Training School, Hartford, Conn.; Anesthetist to the Norfolk Protestant Hospital.

Anesthesia is one line of surgical work to which very little attention has been given in the medical colleges, hospitals, or the profession in outside practice, the administration of anesthetics being looked upon as such a minor or unimportant part that it could be done by anyone available. This is especially true in outside practice, and in most of the hospitals throughout the country.

Most of us know the average practicing physician or interne has no training in this special line of work. And even if he has had training of a few months as hospital interne, he is apt to be out of practice, and probably has not given one for months, or even years.

When an interne or practicing physician is giving an anesthetic his mind is more apt to be taken up with the field of operation than with his part of the work. For this very reason, if no other, a specially trained nurse makes the best anesthetist.

The medical profession is slowly but surely being convinced that this part of surgical work has not received the attention its importance warrants.

The method used by me is the ether "drop method", which has been used so successfully for the past ten years at St. Mary's Hospital, Rochester, Minn., it having been by privilege and pleasure to make a most careful observation of this method at this great surgical clinic.

The inhaler used is the improved Esmarch covered with two thicknesses of stockinet, ether being dropped on slowly until the patient's face becomes flushed; then a few layers of surgeon's gauze are folded around the mask, and ether given a little faster until the patient is surgically etherized, when some of the gauze should be removed. Continue to drop on the ether, which should be done very slowly and with a small drop, only sufficient to keep the patient in this condition, very little being necessary in most cases. The type of operation and operator has a great deal to do with the amount of anesthetic required.

Respiration and circulation, as shown by color, rather than the pulse, are the main indices as to the patient's condition, though in patients who have lost a good deal of blood and who are pale to start with, the pulse may be taken also.

To prevent infection being conveyed from the mouth and air passages of one patient to the patient following, the hands of the anesthetist should be washed between operations, frame of mask sterilized, a fresh sterile piece of

*Read before the Surgical Section of the Norfolk County Medical Society, January 10, 1911.

stockinet placed upon it, and fresh sterile gauze for folding around the mask. These pieces of stockinet and gauze can be washed, sterilized and used again.

The anesthetist should be quick to recognize the patient's temperament when he enters the operating room. Considerable tact must be exercised at times to gain the patient's confidence, which is very necessary in successful anesthesia. After gaining his confidence, suggestion is a powerful aid. The patient is far more responsive and willing to submit to anesthesia if assured by the anesthetist that the surgeon will not be allowed to start the operation until he is entirely unconscious.

After the patient is placed on the operating table, artificial teeth should be removed, hands should be fastened loosely across the chest with a wide gauze bandage, and a pad of moistened cotton placed over the eyes to prevent irritation from the anesthetic.

See that the patient's head is properly elevated. Shoulders should rest upon the table, head supported by one or two soft pillows, according to the depth of chest. There should be no flexion or extension. Very obese patients may require several pillows, which may be successively removed as anesthesia deepens, till dorsal posture is reached.

It is a great mistake, as is recommended in so many text-books, to always lower the head. There is absolutely no danger in elevating the head as much as comfortable for the patient in giving ether. Make the patient comfortable; in short, do everything to enable the patient to breathe easily and naturally. He should be told how the anesthetic will effect him and he will then be prepared for what is coming, and will not be scared or alarmed. It is an excellent practice to divert his attention by talking quietly to him while administering the anesthetic, and less of it will be necessary to produce the requisite degree of relaxation.

One of the greatest aids to surgical anesthesia is the preparation of the patient while being anesthetized, thereby diverting him, so that anesthesia is hastened, and time saved. After the patient's jaw becomes relaxed, turn the head to one side and hold the jaw up and forward.

While the best authorities say there is no single positive sign of surgical anesthesia, yet there are many conditions that aid us—such as deep respiration, relaxation of muscles, etc., all of which, taken together, convince the anesthetist the patient is ready, so that a mistake is rarely made. Give the patient plenty of air, and he will do much better than if crowded. Should respiration become embarrassed raise the jaw and press it forward, withdrawing the anesthetic.

I never use tongue forceps, but rather, when it becomes necessary, catch the tongue with a piece of gauze, pulling it out and somewhat to one side. By giving plenty of air when needed the patient will not become cyanosed, and there will be little need for the many stimulants so often resorted to in operating rooms.

Considerable quantity of the anesthetic is required to produce the desired relaxation in acute peritonitis, old alcoholics, and all rectal cases. Any anesthetic is contraindicated in cases of acute bronchitis or cold.

If stomach cases are thoroughly prepared by lavage, and morphine, grain 1-6, given thirty minutes before coming to the operating room, after the patient is surgically etherized and the incision made for exploring the abdomen, there is no pain while the surgeon is working on the viscera, and the patient may be allowed to become almost conscious, no more ether being necessary until time to close the incision. Thus, the operation may be completed with a relatively small amount of anesthetic.

In most cases that are throughly prepared, especially if there has not been much handling of the viscera in abdomnial cases, or prolonged and rough manipulation by the surgeon, reaction after anesthesia will be short and easy: and the patient will need no special treatment for nausea, other than keeping him quiet.

In a general hospital, where there are many surgeons operating, each having his special method of preparation as well as operation, the patience of the anesthetist may be tried to the extreme. Sometimes a surgeon who may have had a heart-rending experience in resuscitating a patient improperly anesthetized, or, perchance, may have lost one or two, is apt to be scared all the time for fear the anesthetist will give too much, and is apt to worry her about it. And again, if he does not know a great deal about anesthesia, he will sometimes tell you how to give it, especially if the patient makes a move or starts to vomit. All this will tend to con-

fuse and worry you, and if this is noticed by the surgeon, you will immediately impress him that you are not sure of your ground, and he will lose confidence in you at once. If the surgeon has confidence in his anesthetist, he should let her give the anesthetic in her own way and not confuse her by talking at her. It is quite different where the anesthetist has to work for one or two surgeons only; they soon become accustomed to each other, and there is no confusion or misunderstanding.

It is very necessary for the anesthetist, as well as for the hospital, to keep a record of the patient's condition before and after operation—especially the condition of the kidneys, as well as the lungs, heart, and post operative nausea—as these questions are constantly coming up in statistical reports.

At the largest surgical clinics in this country, nurses specially trained as anesthetists are employed, surgeons recognizing the fact that, as they do not aspire to be surgeons, it is not difficult for them to give their whole attention to the anesthetic, which is certainly enough responsibility for one person to assume. And as one pioneer surgeon in the West put it, "In the next decade, I hope to see anesthetics administered exclusively by nurses."

Department Of Analyses, Selections, Etc.

CONDUCTED BY
MARK W. PEYSER, M. D., RICHMOND, VA.
Secretary Richmond Academy of Medicine and Surgery, etc.

Indican from the Standpoint of the General Practitioner.

Henry R. Harrower, Chicago, believes that indicanuria is commonly associated with the following disturbed relations in the urinary findings: 1. An excessive degree of urinary acidity. 2 A high ammonia index. 3. Diminished output of urea. 4. A frequent lowering of the total solids (in addition to the low urea-index). The presence of a decided indicanuria is rarely not accompanied by other symptoms. In a few cases the patients are sure "that there is nothing the matter with them," but more often there is a combination of unpleasant symptoms prominent among which are headache, migraine, malaise and drowsiness, a noticeable diminution in the capacity for work—both mental and physical—chronic constipation and indigestion, nervous irritability, fleeting pains and, often, insomnia. Anemia is very commonly found in these cases, and it is often surprising with what a bound both the red-count and the hemoglobin will rise when the toxemia is removed and indican disappears. It has been frequently noted that the severe anemias, chlorosis and pernicious anemia, are associated with indicanuria; and considerable help may follow the efforts made to relieve this condition.

The treatment of indicanuria *per se* is no sinecure—it is far more than the simple unloading of the bowels and the removal of the putrefying material therefrom. Indicanuria is a habit, and the system has to be weaned from it.

The first indication is met by judicious purging. Dietary regulation with a decrease in the proteid intake (especially the animal proteids) and an increase in the time taken to chew the food. Metchnikoff's bacterial therapy has proved itself of some value. Soured milk is much better than tablets of the germs. Colonic irrigations are splendid and should be carried out daily, whenever possible, in every case. From one to three quarts of water at 80 to 90 degrees should be allowed to slowly enter and leave the colon as high up as possible. This may be continued daily for a week or longer. Another very valuable measure is the high oil injection. From two to six ounces of cotton-seed or olive oil may be injected as high as possible and retained all night. One or two per cent. of ichthyol makes an effective addition. This may be repeated once of twice and special attention given toward dislodging any particles of impacted feces at the angles of the colon.

The relief of ptosis of the abdominal walls and viscera is another important essential, for frequently persistent and intractable indicanurias disappear altogether, to stay away as long as the ptosis is relieved.

Preserved urines do not always give good indican tests. Formalin should never be used, and patients taking urotropin or hexamethylenamine and iodine compounds should cease their use several days prior to the test.

A Specific Treatment for Tuberculosis.

W. C. Goodwin, Philadelphia, states that there are drugs that specifically kill the tubercle bacillus; that the latter does not of itself cause fever, and that when a fever exists it is due either to a mixed infection or to direct infection, such as absorption from an enteric ulcer (possibly excepting tuberculous meningitis), and that, therefore, tuberculous enteritis can and must be diagnosed by the characteristic fever-curve that we call tuberculous. Miliary tuberculosis, or "galloping consumption," is the result of a double infection, principally of the lungs and intestinal tract, and the fever is an index of the extent of the intestinal involvement.

Experimental treatment was begun with iodized calcium, used only when the cough could not be repressed, and calcium sulphide which is claimed to be the most powerful internal antiseptic known. The latter should be of pellet-form, hard and brittle, which, upon being crushed, should have a strong odor of sulphuretted hydrogen, while the bottle containing it should have no odor when uncorked. The dosage of the sulphide for an average patient is 1-2 grain hourly during the day and 1-2 grain every three hours at night. The granules should be safely washed into the stomach by a mouthful of water, as the odor and taste are objectionable—when these are noticed, the pill has lodged in the throat.

At the end of three weeks after commencing treatment, an examination showed relief from the cough; an improved appetite; a plain gain in weight; an increase in the area of tympany about the cavities (which always occurs); diminution in the number of fine, subcrepitant rales and friction-rubs; there was also plainly less moisture in the lungs. This order of change is typical. The patient continued to improve. During the first month of observation of this case, cough and expectoration slowly increased and tympany near the apices of both lungs extended. In a second case, differing from the preceding principally in that there was fever ranging from 102° F. in the morning to 103° F. in the evening, like results were obtained except that the fever steadily increased until death. A third case, which was diagnosed as tuberculous enteritis, confirmed upon autopsy, forced the conclusions set forth in the opening paragraph of this abstract, showing why the calcium sulphide did not reduce the fever as well as the respiratory rate, and the cause of the fever. The salt did kill the bacilli, as proved by sputum examinations and lung changes; but it could not meet the conditions presented by enteric ulcer where the blood supply is below normal and the infection from the bowel is present.

To meet the third indication sodium sulphocarbolate was selected because (1) it is the most powerful intestinal antiseptic known. (2) There is practically no absorption of the drug up to the point of physiologic tolerance. (3) The quantity tolerated is greater than that of any other such antiseptic known. One quality of this salt must be borne in mind, namely, in one patient in about five or six it will at first cause a diarrhea when given in 5-grain hourly doses. But this result may be overcome by a tablet containing 4 grains of the sodium salt combined with 1 grain of zinc sulphocarbolate. Under this treatment, as weeks pass, the whole intestinal tract improves. In the next ward case all three remedies were used, and in two weeks the temperature dropped to normal for a period of twenty-four hours, when opportunity for further observation ceased.

All private patients were now given the same treatment. The results have been singularly uniform and satisfactory. As convalescence progresses, the patients remind one of the stages of recovery from serious attacks of typhoid fever or other infectious diseases. It must not be imagined, however, that enteric tuberculous ulcers can be easily cured. In most instances four to six months, or longer, are necessary to heal them completely, the time depending, of course, upon the intelligence, self-control and vital powers of the patient, as well as upon the care and skill of the physician.

The important point is the consistency and frequency of the stool. A slight constipation is as much to be avoided as a slight diarrhea; and healing will not take place where either is present. There should be but one stool daily.

In cases where moist rales and ulcers are present, *absolute* rest, sleep and forced feeding must be insisted upon. In the convalescing period, too, the patients must be constantly re-

strained, as they have no idea of their weakness.

During the last fifteen months 85 cases have been seen, 5 in consultation. Of these, 11, in the incipient stage, are so completely healed that no one can detect the previous presence of the lesion. In addition, there are 16 cases still under treatment where the disease had already progressed so far that no remedy can conceal the destroyed tissue, and ample evidence of the advance of the infectious process and the strength of the remedy that arrested it will always remain.

These results, too, let it be borne in mind, are taken from an ordinary city practice, with no possible chance for selection, and no special power to secure a favorable environment.

There were eleven deaths, among these being three masturbators, and 8 were in extremis when first seen, only one living six weeks after the first visit. The remaining 42 cases can be explained under the general terms of lack of money, personal indifference and ignorance. —(*Am. Journ. of Clinical Medicine,* January, 1911).

Surgical Anatomy of the Abdominal Wall With Reference to Appendectomy.

Walter E. Tobie, Portland, Me., states that the abdominal wall presents an interesting study in embryology; it consists of several segments piled one on another, each formed of a mesodermic somite, containing dorsally a bone and laterally and ventrally a fibromuscular layer with a nerve, artery, and vein running to each side. The vegetative integrity of the wall depends on its nerve and blood supply; the functional activity on the nerve supply alone; the mechanical integrity depends on the direction of the fibers of muscle and connective tissue. The circulation forms a sort of ring about the abdomen, the arteries being so located that in the ordinary incisions no important artery is cut. The general direction of the aponeurotic fibers is transverse; the nerves run also in a transverse direction. It is of the utmost importance that they should not be cut in operations on the abdomen. An incision to be correct must run so that nerves are avoided, and in order that one can split between the fibers of the aponeuroses. McBurney's incision fulfils these requirements. Weir's also does this; its method of performance is described, as is that of Gill Wylie. The vertical incision through the outer border of the rectus is not anatomically correct; it cuts the fibers of every layer across so that the wound gapes, and it severs the motor nerves that it crosses. The median incision cuts across the aponeuroses, but avoids the nerves. No operator should constantly and systematically violate anatomical principles to an extent that no technical skill can overcome.—(*Medical Record,* January 7, 1911).

Book Notices.

International Clinics. A Quarterly of Illustrated Lectures and Especially Prepared Original Articles. Edited by HENRY W. CATTELL, A. M., M. D., Philadelphia, U. S. A., with Collaboration of Leading Members of the Medical Profession Throughout the World. Volume III. Twentieth Series. 1910. Philadelphia and London. J. B. Lippincott Company. 8vo. 311 pages. Cloth.

This is a specially valuable issue of the *International Clinics,* having articles in nearly all departments of medicine and surgery by well-selected authors on subjects of present interest and importance to practitioners generally. Annual subscription of $10, or $2.50 a volume, gives an excellent medical library. The book is nicely issued, with an abundance of illustrations.

An Epitome of Hygiene and Public Health. By George M. Price, M. D., formerly Inspector New York State Tenement Commission, Medical Sanitary Inspector, New York Department of Health. 12mo. 255 pages. Cloth, $1.00 net Lea & Febiger, Publishers, Philadelphia and New York. 1910. (**Lea's Series of Medical Epitomes.** Edited by Victor C. Pedersen, M. D., New York.)

This is a condensed but up-to-date treatise on public hygiene. Owing to limited space, personal hygiene is not discussed. The author, who has had many years' experience in various capacities as a sanitary officer of the New York State and City Departments of Health, for such a small volume, has surprisingly well covered the scope of the subject. The reader will find here hygiene in its essentials as it relates to housing, school, and industrial hygiene, public water, food, and milk supply, disposal of waste matter, public nuisances, the prevention of infectious diseases, Federal hygiene, and sanitary inspection. A dollar invested in this book will be money well spent.

A Handbook of Practical Treatment. In three volums. By 79 eminent specialists. Edited by John H. Musser, M. D., Professor of Clinical Medicine, University of Pennsylvania; and A. O. J. Kelly, M. D. Assistant Professor of Medicine, University of Pennsylvania. Volume 1: Octavo of 909 pages, illustrated. Philadelphia and London; W. B. Saunders Company, 1911. Per volume: cloth, $6.00 net; Half morocco, $7.50 net.

This volume, the first of a series of three, intended to be sold in sets only, is the collaboration of monographs by twenty-two eminent authorities, the whole being edited by Drs. Musser and Kelly, both of the University of Pennsylvania. The subjects discussed pertain to various therapeutic measures from a general viewpoint, and comprise prophylaxis, diet, drugs, rest, exercise, massage, mechano-, psycho-, hydro-, balneo-, climato-, aero-, electro-, radio-, serum-, and organo-therapy, as well as other miscellaneous methods of treatment. Measures partaking of a surgical nature have been presented by leading surgeons, which feature is said not to be included in any similar work. This book is an exhaustive treatise on the subjects mentioned above and will, no doubt, be a standard for reference for many years to come.

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 & Co. 1910. Cloth, 8vo. 489 pages. Price $2 net.

This manual is designed for the nurse in training as a ground-work for a more thorough knowledge of the various subjects connected with modern nursing. It discusses the duties of the trained nurse, and gives much useful general and special information in a concise and clear manner. The chapter on the administration of anesthetics is not up to the standard of the other portions of the book, though what is written on this subject will probably serve as a general guide for the administration of an anesthetic by a nurse in cases of emergency when it is not possible to secure the services of a competent physician to assist.

Editorial.

Cost of Treatment at Catawba Sanatorium.

In view of inquiries frequently made of the State Health Department as to the cost of treatment for tuberculosis at Catawba Sanatorium, it would seem well to announce that the State divides the cost with the patient, thus reducing the patient's rate to $5 per week. The treatment of consumptives is expensive, requiring, as it does, a large outlay for provisions, nursing and treatment, and the cost per capita of $10 is already low in comparison with charges made by many like institutions. Where prospective patients are unable to make the payment of $5 per week, the last Assembly passed an act authorizing the Board of Supervisors of any county to appropriate a sum not exceeding $75 for the treatment at Catawba of any citizen of that county under certain conditions.

The Sanatorium is at present crowded to its capacity of 110 beds, with a good number on the waiting list, in spite of the additions made during the past fall. With the pavilions added then and the cures among the patients from time to time, it was hoped that the Sanatorium would be able to accommodate all applicants. Its successes and consequent popularity, however, have caused greater demands for treatment than were at first anticipated.

The appropriation for new buildings being exhausted, this would be an opportune occasion for some one or more philanthropists to make a donation for the building of a new pavilion. The State Health Department could arrange to take care of the additional running expenses.

The Fairfax County (Va.) Medical Society

Held its regular meeting in Washington, D. C., February 2nd. After the discussion of business matters the society adjourned for dinner. At the afternoon session Dr. F. M. Brooks, of Swetnam, Va., read a paper on the treatment of typhoid fever, laying great stress on the necessity of good and careful nursing and proper diet. Dr. Vaughan read a paper on the surgical treatment of typhoid fever, in which he spoke of the necessity of surgical intervention in case of severe hemorrhage, or a continuation of hemorrhages. Dr. Vaughan read from a paper he had written and published five years ago, in which he stated that he thought the time would come when the treatment of typhoid fever would be a surgical one from the beginning, by the resection of the diseased portion of the intestine. Dr. Macnamee gave a very interesting talk to the society on the vaccine treatment of typhoid

fever. He said that some success had been met with by inoculation for the prevention of this fever. It had been tried at the Georgetown University Hospital, where he is assistant pathologist, and while not much had been accomplished in the way of curing the disease, yet some of the cases seemed to have been benefited by the use of the vaccine. These papers were discussed by the members of the society. The society then adjourned to meet at Falls Church, Va., the first Thursday in May. Among those present were Dr. C. R. Dufour, President; Dr. R. A. Quick, Secretary, and Drs. Vaughan, A. Coumbe, O. Coumbe, Brooks, Welburn, Fadeley, T. C. Quick, Corbett, Starkweather, and others.

The Shenandoah Valley Medical Society

Met at Harrisonburg, Va., February 15. Interesting papers were read by Drs. Peple, of Richmond, Hunter McGuire, of Winchester, and Walter Cox, secretary of the Society, also of Winchester. In the absence of the president, Dr. D. D. Carter, of Woodstock, Dr. J. E. Lincoln, vice-president from Rockingham County, presided.

Central State Hospital.

At a meeting of the special board of this hospital, held early in February, it was decided to have a separate building for the criminal insane, thus separating this class from the harmless insane. Dr. Drewry, the Superintendent, has long advocated such a plan. The building is to cost about $7,000, and will be erected during the spring.

The board elected Dr. Hugh C. Henry, of Keysville, first assistant physician to the hospital, a position which he held some time ago, until he assumed charge of a private institution.

Virginia State Epileptic Colony.

During the first week in March one hundred epileptics will be transferred from the three State hospitals for white insane to the State Epileptic Colony just outside of Lynchburg. This will materially aid in relieving the congestion at the State hospitals, though there will be about two hundred epileptics who cannot be cared for at the colony at this time.

The General Hospital Board will meet at the colony April 19th to formally accept it, so that it may become a part of the general hospital system for the insane.

The American Laryngological, Rhinological and Otological Society.

The Southern Section of this society met at Lynchburg, Va., January 21st, with a good attendance of specialists in this branch of medicine. In addition to an interesting paper by the president, Dr. Chevalier Jackson, of Pittsburg, several instructive papers were presented and received animated discussion. Many of the local physicians attended the meetings and added greatly to the pleasure of the visitors. In the evening a supper was tendered the members and others in attendance at the Piedmont Club by Dr. James L. Kent, of Lynchburg, Chairman of the Southern Section.

Corinna Borden Keen Research Fellowship.

The accumulated income of this fund now amounts to $1,000. The Fellowship will be awarded by the Trustees upon recommendation of the Faculty to a graduate of the Jefferson Medical College of not less than one nor more than ten years standing, upon condition that he shall spend at least one year in Europe, America, or elsewhere—wherever he can obtain the best facilities for research in the line of work he shall select, after consultation with the Faculty: and that he shall publish at least one paper embodying the results of his work as the "Corinna Borden Keen Research Fellow of the Jefferson Medical College." Address J. W. Holland, Dean.

Dr. Paulus A. Irving Honored.

On a recent visit to Richmond, Dr. Irving was tendered a reception by Dr. Stuart McGuire, at which time Dr. Hugh M. Taylor, in behalf of the faculty of the University College of Medicine, presented the guest of honor with a silver service of five pieces and salver, suitably engraved. This was given as a token of appreciation of his services for many years as secretary and treasurer of the college, until he was forced to resign last September, owing to his removal from Richmond.

Visiting in Florida.

Among the Virginia doctors enjoying a vacation in Florida are Drs. Joseph A. Gale, of Roanoke, and W. B. Dodge, of Stuarts Draft.

Birdville Sanatorium, Petersburg, Va.,

With accomodations for twenty tuberculosis patients, was opened on the fifteenth of this month, at which time several patients were admitted, and applications were in hand from others. On the fourteenth, several hundred people visited the Sanatorium, inspecting the buildings and grounds. The Sanatorium is under the auspices of the Petersburg Anti-Tuberculosis League, which, since its recent reorganization, has a membership of over nine hundred.

As an item of interest in connection with the opening of Birdville Sanatorium, the first camp in Virginia for open air treatment, was established by Dr. Wm. F. Drewry, at Central State Hospital, Petersburg.

Erratum.

The author of the interesting article which appeared in the last issue of The Semi-Monthly on the "Peculiar Elongated and Sickle-Shaped Red Blood Corpuscles in a Case of Severe Anemia" was erroneously stated as being "R. E.," instead of B. E. Washburn. Mr. Benjamin Washburn, who is from Rutherfordton, N. C., is a member of the graduating class in the Department of Medicine at the University of Virginia. His article shows study and close attention to detail work, and is a credit not only to the author, but to the school which he represents.

Meetings to be Held in Chicago.

Owing to the fact that the subjects to be discussed are so closely allied the following associations will meet in Chicago, with headquarters at the Congress Hotel, beginning February 27th:

Association of American Medical Colleges, February 27th-28th;

National Confederation of State Medical Examining and Licensing Boards, February 28th; and

The Conference on Medical Education and Medical Legislation, March 1st-3rd.

Dr. A. G. Brown, Richmond, Va.,

Has been commissioned Captain, Medical Corps Virginia Volunteer Service, for duty with the First Battalion, Field Artillery.

Wise County (Va.) Medical Society.

The officers of this society elected for 1911 are: Dr. R. M. Holley, of Inman, President, and Dr. T. M. Cherry, of Norton, Secretary. Meetings are held quarterly.

Dr. Clifton M. Miller,

A prominent specialist of Richmond, Va., who was recently operated on for appendicitis at the Memorial Hospital, has sufficiently recovered to be at his work again.

Dr. R. E. Wine,

Of Prince William County, Virginia, recently suffered the dislocation of his right shoulder and some minor injuries by the fall of his horse in crossing a bridge over Occoquan Run.

Dr. C. T. Hibbett,

Previously attached to the staff of the Norfolk Navy Yard, has been made Medical Director in command of the Naval Hospital, Norfolk, Va., vice Dr. W. R. Dubose, who has been ordered to Washington for duty as a member of the Naval Examining Board.

Free Course of Lectures.

The Governors of the New York Skin and Cancer Hospital announce a course of lectures on Wednesday afternoons during March and April by Dr. L. Duncan Bulkley on eczema, acne, psoriasis and syphilis, and by Dr. William S. Bainbridge on cancer. The subjects will be presented in a practical and instructive manner and will be abundantly illustrated. The course will be free to the medical profession on presentation of their professional cards.

Obituary Record.

Dr. Edward Gamaliel Janeway,

Of New York City, a prominent specialist on diseases of the mind and tuberculous affections, died at his country home at Summit, N. J., February 10th, aged 70 years. He was considered one of the best diagnosticians in this country, and was well known as a philanthropist. He graduated from the Medical Department of Columbia University in 1864.

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Original Communications.

THE ADVANTAGES OF APPENDICOSTOMY AND CECOSTOMY IN ULCERATIONS OF THE INTESTINES.*

By SAMUEL T. EARLE, M. D., Baltimore, Md.

My excuse for bringing to your attention a subject which has been so frequently talked of recently, is that I may still further impress you with its importance. Notwithstanding the frequent appeals to the general profession in behalf of this procedure, it is seldom recommended by them, and then only as a last resort—apparently forgetting that this is an operation entirely free from fatal results when properly done and almost always attended with prompt relief from the distressing symptoms of ulceration, and is in many cases a permanent cure.

Although the idea of relieving a low down obstruction in the rectum or sigmoid by an artificial opening in the colon was recommended by Littre nearly two hundred years ago, yet it was not until 1893 that we have the first published account of a colostomy being done for the purpose of irrigation, when Mayo Robinson, acting upon the suggestion of Hale White, did the operation for the purpose of irrigating an ulcerated bowel in dysentery.

In February, 1892, acting upon the advice of Dr. Louis McLane Tiffany, I did the same operation for a very obstinate case of ulceration of the sigmoid and rectum, which resulted in a complete cure after a few weeks irrigation. I never before published an account of this case. As in all such cases, the patient soon rebelled at his want of control over his fecal discharges and I was forced to close it by a resection and an end-to-end anastomosis. He made an excellent recovery, and remained well for nearly two years, when the ulceration recurred, and, not being willing to submit to a second colostomy, he succumbed to the ravages of the disease.

The objections to colostomy were first overcome by Gibson, who suggested a valvular colostomy (*Medical Record*, 1901, Vol. I., p. 405; *Boston Medical and Surgical Journal*, Vol. I., 1902,) by which the intestinal wall is inverted around a catheter by several tiers of sutures, which almost completely prevent leakage of the intestinal contents.

Dr. Robert F. Weir, in 1902, was the first to suggest that the appendix should be made to serve this purpose. The name of appendicostomy was first applied to this method by Willie Myer of New York.

Gant (*Boston Medical and Surgical Journal*, September 6, 1906) and William Ewert (*Lancet*, 1906) both suggested the advantages to be derived from using the cecostomy opening for irrigating both the large and small intestine by passing a second tube through the ileo-cecal valve. Gant has more recently perfected this method (*New York Medical Journal*, August 15, 1908) by a specially devised instrument, which is very satisfactory and unique. Gant has also devised a special catheter for appendicostomy by which the appendix can be opened immediately without danger of infection. A cut of both of these instruments I herewith submit.

With these numerous improvements the operation for cecostomy and apendicostomy have been greatly simplified and rendered most satisfactory. The advantages of both have been ably set forth by the advocates of each method, but it is sufficient to bear in mind that they

*Read before the forty-first annual meeting of the Medical Society of Virginia, at Norfolk, October 25-28, 1910.

should be made to supplement each other, that appendicostomy is the more easily done and less likely to be followed by infection of the wound, but frequently there are obstacles in the way of appendicostomy which makes cecostomy necessary.

The technic for either of these operations is given in the most recent text-books, and I shall only refer to the method of using Gant's appendicostomy cannula and his special appliance for irrigating the ileum together with the cecum, as these have not before been described in any text-book except my own, which is still in the hands of the publisher. I herewith submit the cut and legend which fully explains his method of appendicostomy.

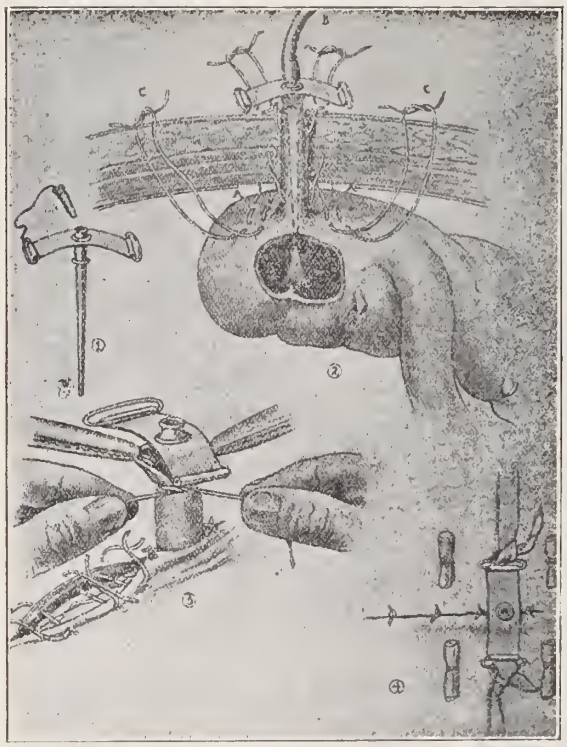

Fig. 1. Steps showing Gant's appendicostomy, which provides for immediate irrigation of the bowel in cases of ulcerative colitis. 1. Gant's appendiceal irrigator. 2. Cecum and appendix in position. 3. Method of ligating the appendix about the irrigator and closure of the wound. 4. Shows the irrigator in place and the attached pieces of tape which pass around the body and retain it in place when tied, and also the rubber tube, across which the suspensory stitches CC are tied. A shows peritoneum removed and the gut being brought in contact with the transversalis fascia: B, tube attached to irrigator. C, suspensory sutures which attach the scarified cecum to the abdominal wall.

The following is a brief description of his method for doing cecostomy with his special appliance for irrigating both the large and small intestine.

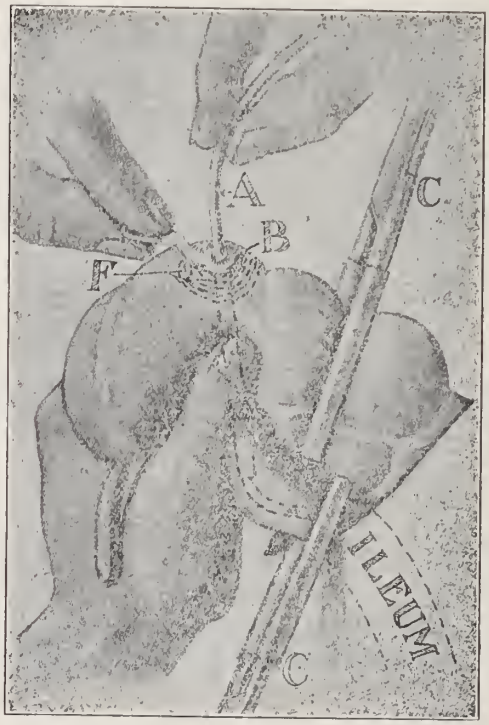

Fig. 2. Showing the different steps in Gant's cecostomy, in which either the rubber catheter or his special apparatus can be used. A, catheter; B, catheter-carrier; C, rubber-covered clamps; F, four rows of purse-string sutures.

First Step.—Through a two-inch intermuscular incision made directly over the cecum, it and the lowermost part of the ileum are withdrawn, and the edges of the wound covered with sterile gauze handkerchiefs.

Second Step.—The cecum is scarified and clamped with rubber-covered forceps to prevent soiling the wound when the bowel is opened.

Third Step.—Four lines of silk seromuscular purse-string sutures are inserted in the anterior wall of the cecum, at or outside of the longitudinal band directly opposite the ileo-cecal valve, when the bowel is quickly opened inside the suture line, by using the knife for the outer coats and scissors for the mucosa.

Fourth Step.—The bowel is grasped at the juncture of the large and small intestine, and is held in such a way that the ileo-cecal valve rests between the thumb and fingers of the left hand. A Gant enterocecal irrigator or catheter carrier is then introduced through the incision,

and carried directly across the cecum and then quickly guided through the ileo-cecal valve into the small intestine by the aid of the thumb and fingers placed there for this purpose.

Fifth Step.—The inflating-bag on the end of the irrigator is then distended in order to hold the irrigator in place until the purse-string sutures are tied.

Sixth Step.—The clamp is now removed from the cecum and the purse-string sutures are tied; this inverts the edges of the bowel about the tubes, each stitch in its turn causing a still further circular infolding of the bowel, together forming a cone-shaped valvular projection all around the irrigator, which effectually prevents the escape of the feces.

Seventh Step.—The cecum is scarified and anchored to the abdominal wall by through-and-through suspension sutures, or by chromicized catgut stitches, which include the transversalis fascia. The wound in the abdomen is closed by the layer method after which the metallic plate is held close to the abdominal wall by tapes passed around the body and attached to the holders at each end of the plate.*

After the diarrhea or ulceration has been cured, and when spontaneous healing permits the withdrawal of the irrigator, the opening may be closed by cauterizing the mucous surfaces, or by taking several sutures under local anesthesia without entering the peritoneal cavity.

In the absence of the special mechanism for doing Gant's cecostomy, two pieces of catheter, one for the cecum, and one for the ileum, may be substituted for the irrigator, in which case it is necessary first to introduce a Gant's catheter-carrier.

Gant has obtained some wonderful results in the treatment of anemia by means of small and large intestinal irrigations, and is satisfied that attacks of typhoid fever could be shortened and made less severe by this operation, and patients suffering from ptomaine poisoning and cholera could likewise be benefited.

While it has been chiefly for cases of ulceration of the colon that the above procedures have been recommended, yet their usefulness has been extended to a variety of other conditions, especially since the cecostomy opening has also been made to serve the purpose for irrigating the small intestine; namely, chronic constipation, pernicious anemia, general peritonitis, to relieve distension and to allow fluids to be introduced, as in Murphy's proctoclysis after intestinal resection, to avoid tension on the sutures for the relief of intestinal obstruction, autointoxication, intestinal feeding and diarrhea in children.

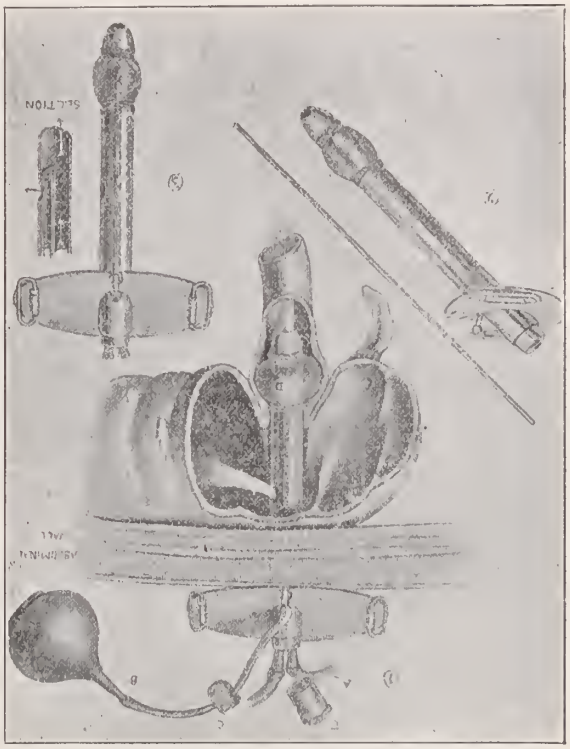

Fig. 3. Steps showing Gant's cecostomy, which provides for irrigation of both the small and large intestine. 1. Shows apparatus in position. 2. Side view of Gant's entero-cecal irrigator. 3. Front and sectional view of the same. (a) Irrigating tube; (b) inflating attachment; (c) clip for enclosing same; (d) shows inflating bag distended with air to prevent return of solution into the cecum; (e) cover for irrigator. The celluloid rod shown on the right of (2) is used as a guide for removing and reintroduction of the irrigator when it becomes necessary to change the inflating bag.

It is now generally conceded after careful and prolonged observation of cases of amebic ulceration on whom appendicostomy or cecostomy has been performed that they are not cured by such a procedure, as they all tend to recur in the course of time, but the relief from existing symptoms is so marked and continues for such a length of time that it more than justifies its performance, and patients almost invariably express themselves as fully satisfied

*Remarks.—In order to avoid the danger of infecting the wound, irrigation is not begun until the second day, unless there is some special reason for greater haste.

for the relief they obtain. More permanent results are obtained for other conditions for which it has been done, especially in cases of bacillary dysentery and other forms of ulceration than amebic.

The last two cases of ulceration operated on by myself which were not amebic have remained perfectly well for some months, and there is every reason to believe that if the operation was not so long delayed a much larger number of cases would be entirely relieved.

It is the general opinion now that it is much better not to close the appendiceal or cecostomy opening, as it is attended with so little inconvenience to the patient and is ready for use should he have a recurrence. In the case operated on by me in 1892 and cited in the early part of this paper, it will be remembered that he had a recurrence two years after the closure of the colostomy opening.

I have a patient who was operated upon about five years ago and whose appendiceal wound still remains open with very little inconvenience. He is able to attend to his regular duties and is a noted golf player.

I wish to bring this subject especially to the attention of the general practitioner as he is the first to see and treat the case that calls for this operation. In this day of rational medicine and with the knowledge now possessed of the chemical action of the secretions of the stomach and intestines on medicinal substances, it is expecting entirely too much of medicine to effect a cure by mouth, after running the gauntlet of the stomach and small intestine, nor is the success of irrigating the colon through the rectum attended with satisfactory results, it being similar to the attempt at flushing what is commonly known as the "dead end" of a water main.

The thorough irrigation and medication of the entire colon and rectum through a cecostomy or appendiceal opening is therefore the only rational, complete, and satisfactory method of treating these cases, and as I have shown it to be safe and easily accomplished there remains no excuse for its being made a last resort.

1431 *Linden Avenue.*

THE PRINCIPLES OF INFANT FEEDING.*

By EDGAR P. COPELAND, M. D., Washington, D. C.
Clinical Associate in Pediatrics, the George Washington University, Department of Medicine.

Throughout the entire field of medicine, vast as it is, there is no subject more vital than that of nutrition. In its relation to the prevention and treatment of disease it is fast assuming the position of first importance. Certainly nutrition is the most serious as well as the most difficult problem with which the pediatrist is concerned. At a time in life when prophylaxis offers most, no field of endeavor is so pregnant with opportunity.

The normal infant, living under normal conditions, is well supplied with a highly specialized food, natural to its species, and adequately meeting its nutritional requirements. Unfortunate though it be to mother and offspring alike, it is very generally recognized that a large proportion of infants are deprived of this natural food during the nursling period. The immediate effects of such an unnatural state are, statistically expressed, in a greatly increased infant mortality, but such expression enables us to form no real conception of the tremendous crippling and lowered resistance to morbid influences necessarily resulting.

To meet the needs of these unfortunates, solutions, countless and diverse, have been offered and have met with indifferent success. There have been evolved however, certain fundamental principles, with a knowledge of which one may proceed to employ that particular solution that seems to best meet the needs of the case. These fundamental principles are based upon a proper appreciation of the needs of the nursling and an attempt to scientifically meet such needs. We have been all too slow to realize that the artificial food, whatever it may be, is essentially foreign and that each infant is a law unto itself with respect to the form in which such substitute is acceptable.

Before proceeding to a discussion of artificial feeding, it may not be amiss to consider briefly the anatomy and physiology of the alimentary tract in the new-born and the highly specialized food for which it seems prepared.

The first nutritive period of man, that period in which he normally derives from the mother

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his nutrition, is distinctly a fetal existence, intra-and extra-uterine, the latter state being more or less analogous to the extra-uterine existence of the implacentals. With respect to its digestive system the infant deprived of mother's milk during the nursling period is quite as premature as the one born before term. It is totally unprepared to receive for digestion any but the food natural to its species.

While it develops rapidly in size and shape, the stomach is at birth little more than a dilated tube, occupying an oblique position just beneath the diaphragm. The sigmoid is relatively long with markedly accentuated curves. Muscular development is strikingly deficient throughout. In the stomach at the tenth month the oblique fibers are entirely wanting, the longitudinal and circular ones very thin. This, under development of muscular tissue in the intestinal walls, readily permits of abnormal distention in the presence of excessive gases, and is largely responsible for the constipation that proves so intractable in early life.

Despite the conflict of opinion as to the digestive secretions in this early period of life, it is very generally conceded that the nursling is not properly prepared to handle unconverted starches before the fifth or sixth month of life. At this time the salivary secretions have become copious and ptyalin, present even from birth, is present in effective proportions. The action of the stools of the new-born in converting starch has been demonstrated by a number of investigators, but amylopsin does not appear in the pancreatic secretion until after the second month. Rennet and pepsin are present in the gastric juice at birth, but the hydrochloric acid is deficient, increasing in quantity as, with development, gastric digestion becomes more and more important. We shall shortly see how hydrochloric acid acts to prolong gastric action by retaining food in the stomach.

As a result of this manifestly immature condition, the infant is poorly equipped for digestion at and for some time after birth. Its alimentary tract is an absorptive rather than a digestive agency. For this reason the food supplied at this time must be one supplying a maximum of nutrition with the least possible effort at digestion. Such a food nature normally provides in colostrum.

Colostrum* has a high nutritive value, largely made up of soluble protein and dextrose and is all but ready for absorption. Its protein, in striking contrast to that of milk, does not curd under the influence of rennin, but may be coagulated by heat. This food is normally supplied to the infant over a period of from ten to twenty days, but after the third or fourth day begins to be mixed with milk, by which it is finally replaced, its soluble proteid gives way to one that partly coagulates or curds under the influence of rennin, its dextrose to milk sugar.

The change in the protein is particularly significant. With its first appearance in the stomach the rennin begins to functionate, at first in the absence of hydrochloric acid, forming soft flocculent curds, that serve to retain the food mass only slightly longer than colostrum. With the secretion of acid in appreciable amount begins the formation of firmer curds and casein combinations susceptible to the action of pepsin, the greater the quantity of acid the firmer the curding and the greater the quantity of food for gastric digestion. Thus we observe the gradual development of an organ, at birth little more than rudimentary, depending upon the nature of the food supplied and the reaction of that food to the maturing secretions. Prior to the phenomenon of curd formation colostrum passed directly through the pylorus into the intestine for absorption.

Investigation shows the nurslings of all animals go through the same developmental stages, the milk of its species being so perfectly adapted to its needs as to supply at once adequate nutrition and at the same time insure such an evolution as will meet the needs of after life. Thus we observe milk to behave differently in nursling animals. In those where the digestion is to be principally intestinal (mare and ass), the reaction of the gastric juice to the milk results in the formation of soft gelatinous curds, readily passed through the pylorus, whereas in others, where gastric digestion is of first importance, (cow, goat and sheep), we observe the formation of firm curds that leave the stomach with difficulty before digestion. The human takes a position midway between these two extremes and we see mother's milk becoming more and more difficult of digestion as the stomach develops in muscular and secretory function.

All of these milks, natural to the young of

*Proteid 5.71% and dextrose 3.75%.

the particular species, are essentially the same in that they contain the same fundamental food elements, protein, fat, carbohydrates and mineral salts with water, but they differ widely not only in the proportions in which these elements are present, but what is more important, in the forms in which these elements are offered. These physiologic differences are never shown by the most complete chemical analyses at our disposal, but are the factors of importance in adapting the milk of other animals to infant feeding. All milks are further alike, in that a portion of their protein, casein, forms under the action of rennin, a coagulum, varying in character to meet the requirements of the particular digestive tract for which it was intended.

The natural food for nursing infants, therefore, supplies not only a satisfactory nutrition, but acts in such a manner as to effect a gradual development of the digestive system, to the end that foreign foods can be handled at the termination of lactation. At this time the infant enters upon what may be termed its second nutritive period, that in which it receives no nourishment from the mother.

From what has gone before the requirements of a food designed to supplant mother's milk are obvious. It must first of all be acceptable and digestible; it must furnish the necessary food elements in such proportion as to insure nutrition; and finally it must be supplied in such form as to encourage and even necessitate a normal development of the alimentary tract. We frequently observe substitutes meeting one and even two of these indications, but a proper food for permanent use must meet all.

In attempting artificial feeding the protein is the first consideration. It alone can compensate for tissue waste and ensure cell growth and multiplication. Anemia, faulty circulation and feeble muscular power are soon observed when the diet is deficient in this important factor. Protein must therefore be present in an acceptable form and in sufficient amount to meet the needs of a rapidly growing organism. In any given diet the ratio existing between the digestible protein and the fat and carbohydrate, as reckoned in heat or energy units, is termed the nutritive ratio. An examination of mother's milk shows a nutritive ratio varying from 1-8 to 1-12, much lower than that necessary for the best results in the adult. There is, however, a relatively greater amount of protein required, per pound of body weight, in the infant by almost 2 to 1.

In actual practice the proteins at our disposal are so few and so difficult of digestion, that in the process of education to a foreign food, the infant is oftentimes required to subsist for months on foods low in real nutritive value. Thus we see the tremendous disadvantage under which the artificially fed nursling labors, and are enabled to appreciate its lowered resistance and the readiness with which it succumbs to disease.

The peculiar reaction of the casein of all milks, to which previous mention has been made, gives milk protein a necessary place in the dietary. Owing to the physiologic differences in the various caseins, curding is frequently artificially controlled to meet a temporary intolerance on the part of the infant. Such modification is always in error when it is carried beyond actual requirements or continued over too long a period, since the value of casein is dependent upon this reaction to rennin. Excessive acidity brought about by the activity of acid producing organisms in milk kept at too high a temperature is often responsible for casein intolerance. It is therefore necessary, apart from the dangers of infection, that milk, for use in infant feeding, be produced and kept under ideal conditions. Vegetable proteins are available both as adjuncts to animal protein as supplied in milk and as temporary foods when used alone. So also are the proteins found in egg albumin and the various meat broths, but it must be remembered that these proteins can under no circumstances encourage that normal development of the digestive tract that must be a part of successful feeding.

Fats are essentially heat producers, and should be supplied in such amounts, that the entire protein intake be available for growth and nutrition of body cells. The demands of the body are first for heat, so that in the absence of sufficient fat and carbohydrate the protein takes up the function, at the expense of growth. It is thus possible to supply sufficient energy on a high protein and low fat content, but such a diet throws a great tax upon the excretions. It is not however, possible to maintain even nutrition, to say nothing of promoting development, upon a food deficient in both protein and fat, as are all of the infant foods

prepared for use independently of cow's milk. Upon a low fat diet we sooner or later observe a faulty growth of the nervous system, with functional disorders, dependent perhaps, upon the absence of lecithin, found so intimately combined with milk fats. On the other hand excessive quantities of fat, even in human milk, where a wide range of variation is tolerated, lead first to gastric disorder with casein indigestion, and later to both diarrhea and constipation.

For our fats in artificial feeding we are dependent upon the butter fat of milk and so different is it physically and chemically that the difficulty of its administration is only less than that of protein. Comparison shows the fat of cow's milk to be a coarse emulsion and to contain an excess of the fatty acids. Seldom in actual practice are we able to use for any considerable period an amount equivalent to that found in human milk.

The carbohydrates with the fats round out and balance the heat-producing portion of the diet, reserving the protein for actual tissue growth. In supplying carbohydrate, lactose has been most commonly used, because it does not ferment with the yeasts ordinarily present in the stomach and because it seems the natural sugar. Cane sugar, maltose and the starches, dexterinized and plain, are used to meet special indications, as, for instance, the use of maltose in constipation. Maltose is present in many of the infant foods in large proportion and is largely responsible for their favorable laxative action.

In the use of cow's milk modifications for infant feeding the mineral salts are adequately provided in all reasonable combinations.

Some years ago, when we were wont to attach undue importance to the chemical analyses of milks and appreciated too little their vastly more important physiologic differences, the so-called percentage system had its inception in an attempt to produce, artificially, human milk. The fallacy having been long since demonstrated, the method now stands for a more or less accurate knowledge of the content of a given diet. While we must give due consideration to the percentage composition of human milk in endeavoring to provide for the nutrition of the nursling, we cannot hope to solve the problem by chemical reproduction.

A determination of the total amount of food required in a given case is of great importance, for the reason that in depending upon clinical observation, the harm is oftentimes done before the error in diet is fully appreciated. Such a determination has been satisfactorily worked out for man, and owing to the balance between the protein intake and nitrogen excretion is not difficult. With the infant such work has been especially difficult, from the fact that the rapidly growing organism requires a supply of protein far above what is shown by its nitrogen excretion. Forty calories per pound of body weight for each twenty-four hours is the average need. Now, having prepared a food acceptable to the infant, with a proper nutritive ratio, the estimation of its caloric value is not troublesome. A comparison of such value with the infant's requirements is important in determining a minimum energy value, below which we may not safely continue for any length of time.

Having satisfied ourselves as to the amount of food required in twenty-four hours, it must then be determined what quantity is to be used at a feeding and what interval there must be between feedings. Conclusions must be based upon the character of the food, the age of the infant and the capacity and muscular tone of the stomach. The infant's stomach empties much more quickly after a feeding of human milk than after any other possible nourishment. The acidity of the gastric juice is largely dependent upon age, and the influence of acid in retaining food for gastric digestion has been pointed out. Stomachs deficient in motile power as the result of faulty feeding or disease require time to evacuate their contents.

Fortunately, the healthy infant, like all other healthy young animals, adapts itself readily to altered environment, including food, if due time is given; otherwise, our efforts could never meet with success. We must bear in mind that any artificial food, no matter how scientifically worked out, is essentially foreign and may give trouble. Finally, we must remember that what meets indications in one child will fail with another under apparently the same conditions, so that in so far as it is possible we must arm ourselves with such knowledge as will enable us to interpret alike the causes of success and failure* *The Rockingham.*

*For discussion, see page 546.

REMARKS ON IMMUNITY—SIMPLICITY OF THE THEORY.*

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Numerous theories have been offered in explanation of the phenomena of infection and hereditary or acquired immunity. The general idea is that these theories are intricate, conflicting and confusing to a degree, almost beyond understanding. Such, however, is not the case. A little study will show that nearly all the confusion arises from a multiplicity of names for the same thing, and from the fact that no single theory—Ehrlich's, for instance, or Metchnikoff's—covers the whole ground.

The clearest and most comprehensive explanations have been given by Metchnikoff and Ehrlich, and, between them they have given us a clear, comprehensive, durable foundation and framework, the details of which are being gradually filled in by a host of earnest workers. The theories of Metchnikoff and Ehrlich, together, cover the whole field, as far as that field is explored, and seem capable of unlimited extension as new territory is discovered. Welch, of Baltimore, nearly doubled the field a year or two ago, when he applied Ehrlich's side-chain theory to the defense of the bacterium against the toxins of the animal cell and showed that a veritable chemical war existed between the invading germs and the cells of the infected animal.

All other theories, so far as I can discover, are parts of Metchnikoff's or Ehrlich's, or a mixture of parts of each, rendered obscure by changes of nomenclature, and more or less distorted by the narrowness of the field to which they have been applied. For instance, Ehrlich's amboceptor has been called the immune body, the sensitizer, the fixative, the preparative, the desmon, the Zwischenkörper, or double body, and the mordant, while Metchnikoff's cytase has been split up into cytolysin, bacteriolysin, hemolysin, and includes the precipitins agglutinins and deflective bodies that were discovered later, and Wright's opsonins.

The easiest way to get a clear idea of the subject is to fix in the mind a picture of the simple, solid foundation theories of Ehrlich and Metchnikoff and then, when some new term or theory or fact arises, to fit it into its proper place in this solid structure. Studying the subject in this way is like studying the brain by the developmental method—each part has its morphological significance. If I can demonstrate this method as clearly as it is pictured to me I shall have accomplished a large part of the object of this paper. But I wish to go a step further and demonstrate something that I believe has never been shown before—namely, the single force that is the prime mover in all the phenomena of immunity.

First, let us examine the so-called medical "pons asinorum"—Ehrlich's side-chain theory, which Rosenau says is "a brilliant chemical conception," giving the only satisfactory explanation of many of the phenomena concerned in immunity, and I shall make use of Rosenau's graphic method of describing it. Each cell of the animal body and blood consists of protoplasm, which we may regard as a mixture or grouping of many highly complex, unstable nitrogenous compounds. The surface of each cell is covered with groups of molecules having different affinities or combining powers. These surface groups, consisting of one or more complex molecules, Ehrlich calls receptors. These receptors may be illustrated by signs or bonds, as used in chemical formulæ, or by peculiar shapes and sizes, as in Figure 1.

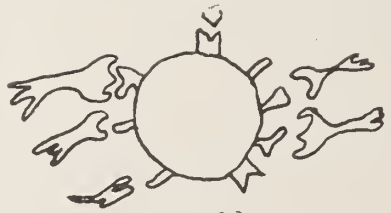

FIG. (1)

Remember, these signs are purely arbitrary, and have nothing to do with the anatomy of the cell, they simply represent groups of molecules, or single complex molecules of different affinities or combining powers.

When a bit of poison of a bacterium, or toxin, approaches the cell if it finds a receptor of proper affinity it becomes attracted to it, combines with it, and poisons the cell more or less severely. Usually, it takes many bits of poison, combining with many receptors, to kill the cell.

The toxin may also be represented by an arbitrary figure (Fig. 2), and consists of two

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FIG. (2)

molecules, or groups of molecules; one (a) having the combining power, called the haptophore or haptophore group (meaning to seize or attack), and the other (b) having the poisonous quality called the toxophore or toxophore group.

Figure 3 represents the toxin united by haptophores to the receptors of a cell, and in the act of poisoning the cell.

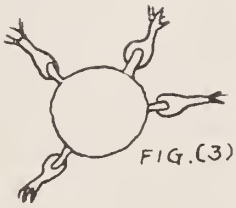
FIG. (3)

Under these conditions, the cell is either quickly killed, or, if not fatally poisoned, reacts by producing many receptors, some of which become loosened from the cell and float free in the body fluids or blood. This is shown in Figure 4, which also shows some of the free


FIG. (4)

receptors meeting particles of toxin, uniting with them and neutralizing them or rendering them incapable of combining with the cell, and, therefore, incapable of poisoning it. These escaped receptors are called antitoxins. When a toxin approaches a cell if it finds no receptor for which it has a chemical affinity, it cannot unite with the cell nor harm it; but it often happens that a body or group of molecules exists in the blood serum and body fluids, capable of uniting with the toxin and also with the receptor, thus bringing about union and poisoning of the cell by the toxin through its intermediary agency. This intermediary body is called an amboceptor, or immune body, because the poison never seems to hurt it.

In many cases the poison body or toxin remains attached to an immune body for a long time and finally dies off, leaving it intact. The amboceptor, or immune body, may be represented as in Figure 5, where the toxin does not fit the receptor.


FIG. (5)

Toxoids.—Germs may produce several distinct poisons, just as plants like the cinchona tree and the poppy may produce many alkaloids. Usually, there is a principal one which is called the toxin, while the whole output is called a toxine. Diphtheria toxine consists of several poisons, the most active being the diphtheria toxin. As each toxin requires its own peculiar receptor, or one suited to itself and a small group of closely allied poisons, and as the reproduction of receptors is always of that particular kind it will be seen that the detached receptors or antitoxins must be practically different for each poison and that a single cell may be capable, under different stimuli, of producing many kinds of antitoxins. Many more antitoxine bodies are produced than needed. It is still an open question whether some of these antitoxines may not have other properties than the simple blocking of the toxin. There are substances found normally in the blood plasma having more or less active destructive action upon the bodies of bacteria. These substances resemble enzymes and are called lysins and agglutinins, according to their action upon bacteria. They are probably receptors formed and detached under peculiar stimuli. Metchnikoff includes all such enzymelike bodies in the term cytase (meaning cell enzyme), and believes that they are produced as excretions of the phagocytes, after having digested micro-organisms. In the present state of our knowledge we cannot positively state the place or exact manner of the formation of such substances as the enzymes, agglutinins and precipitins, but there is strong reason to believe that they are products of the body cells or blood cells, formed under peculiar stimuli, some by the phagocytes, as held by Metchnikoff, and some by any or all body cells,

as taught by Ehrlich. We have now reviewed the main facts, the working basis of Ehrlich's theory, and it will be interesting to note that Ehrlich pictures the hungry protoplasm of any cell of the body, or body fluids, with its compound molecules and side chains of various combining affinities, ready and eager to unite with food molecules brought to it by the blood, or body juices as the foundation of his explanation of the chemical product of antitoxin. While Metchnikoff shows us the hungry phagocyte as a free physical body seeking food, engulfing the bacterium, forming a vacuole around him, digesting him and excreting enzymelike cytase, useful in protecting the cell against bacteria. I must credit Rosenau with this comparison, and he further says: "It is strange that the same combining affinity should exist between the protoplasm of the cell and the proteid molecule that furnishes its food as between the cell protoplasm and the toxin of bacterial poison." It does not seem so strange however, when we realize that all suspended bodies are either mutually attracted or repelled, under the simple law of chemotaxis, and that it is only when they are mutually attracted, that any kind of reaction *can* take place between them.

Metchnikoff's theory of phagocytosis is so simple and well known, that I need say little about it. Phagocytosis undoubtedly plays an important part in producing immunity by removing germs that may be regarded as poison factories, and this is sometimes accomplished unaided, but more often after the cytase or lysins have weakened the germs or even killed them. In the tissues of the body phagocytes probably play a more important part than in the blood. Here even after the ingestion of germs virulent enough to kill the cell, the dead bodies of cells may be found containing germs in their protoplasm that are rendered innocuous by mechanical detention, if in no other way.

They are thus held long enough for the formation of new connective tissue into an abscess wall and prevented from entering the general circulation. The formation of a tubercle is a most interesting contest between the tubercle bacillus, and the phagocyte, aided by connective tissue proliferation.

The only mistake in Metchnikoff's theory, is in trying to make it cover the whole ground, and the same is true of Ehrlich's theory. They are supplementary to each other, and the same natural force, chemotaxis, is the foundation of each. Chemotaxis means simply chemical movement, and may be either positive or negative; either chemical attraction or chemical repulsion. The laws of chemotaxis are well known, as are the laws of electricity, but the exact nature of the attraction is as vague as our knowledge of what electricity really is.

The molecules of colloids are held apart by a repulsion due to each molecule being charged with the same kind of electricity. Finely divided platinum may be kept suspended in pure water for months and perhaps indefinitely, by having each particle charged with the same kind of electricity, making a permanent emulsion that is practically a colloid and the platinum may be instantly precipitated by the addition of any substance to the water that makes it a good conductor of electricity. Many similar experiments show conclusively, that, at least in certain cases chemical repulsion or negative chemotaxis is an electrical phenomenon.

Late discoveries point strongly to the probability of all chemical attraction being really electrical, and recent studies in the polarity of ions of radio-active substances seem to show that electricity may be really chemical attraction and repulsion of ions. Certainly, no chemical action can take place without some electricity being produced or absorbed and no electrical movement can take place without chemical action being produced, and chemotaxis, whatever its nature is, is at the bottom of all the phenomena.† 1418 *L Street, N. W.*

INJURIES TO THE SACRO-ILIAC JOINT.*

By S. B. MOORE, M. D., Alexandria, Va.

I use the term joint, instead of synchondrosis as formerly taught, as it has all the elements of a joint—namely, synovial membrane, a cavity and a strong, well-formed capsule.

The literature on this subject is very limited. Dr. Frederick Snellings in 1870 read a paper before the Medical Journal Association of New York, on Relaxation of Symphysis, and Touch, on Relaxation of the Iliac-Synchondrosis.

†For discussion, see page 547.

*Read before the forty-first annual session of the Medical Society of Virginia, Norfolk, October 25-28, 1910.

Drs. Goldthwait and Osgood wrote the first papers of value that brought the subject of disease and injuries of the sacro-iliac joint to the profession.

Anatomists, gynecologists and obstetricians differ in their description of the anatomical arrangement of the joint. Morris holds that the presence of synovial membrane is not constant and denies that there is any movement in the joint. Cunningham claims that the synovial cavity is imperfect and rudimentary. Williams claims that there is more or less synovial membrane; therefore, the articulation between the sacrum and ilium commonly described as a synchondrosis should be called a joint. Dr. Goldthwait dissected several sacro-iliac joints, and found a synovial membrane in end. Dr. Albee dissected fifty specimens at the Cornell University Medical School and found a perfect joint composed of all its elements, such as synovial membrane, cavity, and a strong, well-formed capsule in every case, and proved it to be as constant in its size and relations as any other joint. Before opening the joints, he injected a few of them with an aqueous solution of methylene blue which colored the synovial membrane, so that it could be seen to distend and retract all along the anterior inferior aspect of the joint when motion was elicited.

The shape of the articular surfaces of the sacrum and ilium is such that the surrounding ligaments and muscles are called upon to furnish a greater portion of the stability of the joint; therefore, when the ligaments and muscles are injured by sudden strains, such as one would receive by a heavy fall on the back or in a sitting posture, there is a possibility of relaxation or rupture of the ligaments.

When studying the anatomical arrangement of the sacro-iliac joint, we find the lumbo-sacral cord and sacral plexus are in close proximity to the sacro-iliac articulations; hence they are of importance in explaining some of the symptoms we encounter, such as backache, sciatica, etc.

Etiology of the sacro-iliac joint. Condition is not always clear but there are many features of definite importance.

At times in obstetrical cases, the lesion apparently represents an excess of a normal physiological relaxative. A general lack of physical tone naturally predisposes to trouble of this description. Today a great majority of these cases are diagnosed and treated as lumbago, sciatica and rheumatism without the underlying pathological process being recognized.

With some of our cases the diagnosis is rather difficult. They may complain of pain in the lumbar and sacral regions, more or less pain down the limbs, and inability to stand without discomfort. Many of these symptoms are due to some injury to the sacro-iliac joint, and may be treated for uterine and ovarian troubles; this mistake is made when we make a snap diagnosis without getting a complete history of the case.

A pelvic examination in these cases will elicit more or less hyperesthesia; all of the pelvic organs are tender—in fact, all the tissues below the pelvic brim are sensitive to the touch, presumably due to some intra-pelvic condition.

Many of these cases have the ovaries and tubes removed, or are curetted, tamponed, and douched without any relief, and gradually drift into a neurasthenic condition of semi-invalidism. All of the cases could be improved or cured by proper treatment.

The obstetric forceps is a factor, especially in high forceps work, where there is a great amount of force badly used in making the delivery and more especially in cases where the anterior posterior conjugate is below normal.

Dr. Winebrake claims the sacro-iliac joint is more abused from ignorance than any other joint in the body.

Especially in high application of forceps, without waiting the proper time and without proper knowledge of the mechanism of labor, many apply the forceps and use brute strength, the patient being rendered practically an invalid due to injury of this joint.

This abuse is going on all over the country. In the race for money, men have not the time to wait in practice of obstetrics, so as to give nature a chance.

Symphysiotomy may be blamed for a few cases, especially where the separation at the symphysis is above two and one-half inches. This joint will stand considerable abuse under favorable circumstances, as in cases reported

by Edgar when found two to two an one-half inches separation without injury to the joint.

Railroad surgeons have opportunity to see many of these cases. I can reeall one case, of which I will give a history later, where the patient jumped from a fast moving engine that he had made every effort to stop, thus giving himself only a few seconds to get off before the collision and for whieh reason he was unable to find a favorable place to jump. In sueh instances, the party possibly lands on one or both feet, then slides on his back for some distance, all of which is sufficient to, and generally does, cause some injury to the saeroiliac joint. In this class of patients, symptoms may be of slow onset, and referred pains do not generally develop for some time.

In very fat people, with large, pendulous, abdomens, there is a tendency to lordosis with resulting pelvic-joint strain, and this possibly explains the frequency of sacro-iliac weakness in this type of individual.

Another predisposing eause is the straight front corset if tightly worn, causing an unnatural degree of lordosis by producing too mueh pressure upon the anterior portion of the iliae crest. The iliac bones are forced downward and forward at the top and backward at the isehia.

Heavy falls on the back, and lifting and carrying heavy weights have been known to cause this trouble.

One of my patients received this injury on a dark night while stealing watermelons, by falling in a ditch on one knee.

Most all of the patients I have had the good fortune to see, stand in a more or less stooped position with the body bent to the opposite side to the injury, and walk with great effort and pain. Any motion that has a tendeney to tighten the ham-string museles will cause severe pain, and all motion in the baek in the lumbar region will be limited by museular spasm.

As to the treatment, there is but one indication, and that is to immobilize the joint, either by strapping or by properly fitting a belt, and in some cases, a plaster jacket. In case of infected joint, the treatment is to open and drain posteriorly.

I wish to cite a few illustrative cases which it has been my good fortune to see and diagnose as injury of the sacro-iliac joint, and treat with good result.

Case I.—H. M., white, male, ageu forty, previous history good. Injured by jumping off a rapidly-moving engine, landing on feet, then sliding for several yards on the back; was unable to walk or stand for several weeks, then with great effort and pain. I saw him February, 1909, with other physicians, but must admit I was unable to make a correct diagnosis until several months later—to be more exact, not until I had the pleasure of hearing Dr. Albee read his paper on the subject in June, 1909. I corrected my diagnosis of the case before leaving Atlantic City, and as soon as I arrived in Alexandria I sent for my patient and used several two-inch strips of ZO adhesive plaster very tight around the pelvis below the anterior superior spines of the ilia. A few days later I placed over this a non-elastic belt, which was worn with great comfort, and he was enabled to walk within a few days without the aid of a cane. Patient returned to his former occupation within one month.

Case II.—S. D., white, male, about forty-two years of age, weight 215 pounds, previous history good. Was in good health up to two years ago, when he complained of pain in the region of the sciatic nerve on the left side. Had Goldthwait symptoms—that is, pain on pressure in region of the sacro-iliac joint with the thigh flexed and the leg extended to a right angle or less. This condition was caused by the patient frequently jumping off trains running at a moderate speed and landing on the left foot, causing a relaxation of the ligaments; this incapacitated him for several months. In the meantime he was treated with all variety of drugs, and with electricity, etc., thrown in, for sciatica, rheumatism, and the like, but with very little result. Absolute rest in bed relieved this condition within six weeks. This was before I used the adhesive strips to immobilize the joints.

Case III.—M. A., white, male, aged thirty-six, contractor, came to me about five months ago from Jacksonville, Fla., suffering with sciatic pain and pain in the lower lumbar and sacral region. First noticed this condition a short time after jumping from a scaffold. This grew progressively worse until I placed him under treatment. After stripping off clothing I found tenderness over the region of the left sacro-iliac articulation, severe pain being caused by pressure on the crest of the ilium. He was unable to turn in bed without great effort and pain. I securely strapped the pelvis with two-inch ZO adhesive plaster, which gave great relief within a few hours, and entire relief within six weeks.

Case IV.—Miss W., aged twenty-one, white, previous history good. Was in good health until she received a fall two months ago; then commenced to have pains in and down one limb; unable to turn in bed without considerable pain. Was sent to me to be treated for some uterine trouble, as she suffered very severely during menstruation. I made a thorough examination and found considerable pain on pressure over left sacro-iliac joint. Treatment was used as in former cases, strapping with ZO adhesive plaster entirely around the pelvis. This was followed with non-elastic belt, which was left on for six weeks, and resulted in cure.

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PRESIDENT'S ADDRESS, AUGUSTA COUNTY MEDICAL ASSOCIATION.*

By M. J. PAYNE, M. D., Staunton, Va.

When we reflect upon or compare the various means advocated for the preservation or restoration of health the more discriminating mind of the public, the more exacting requirements imposed upon physicians, the increased struggle for existence, one is brought to the realization of his own limitations and the necessity for not only self-improvement, but of improvement of the medical profession as a whole. I shall consider this improvement as affecting the moral, physical, social, educational and financial standing of the physician and the medical profession.

A county society should provide every means possible for making its members the most efficient practitioners of medicine attainable, and at the same time should safeguard the profession from all incidences and embarrassments detrimental to their mutual or individual welfare. There should be not only literary and scientific improvement, but social and financial betterment.

The constant aim of such an organization should be to establish a professional and social caste for its members, its body organization, in that community or section, so that the most beneficent relations may be developed beween the profession and the public.

It is important then, and absolutely necessary that we have the entire and united efforts of every member of the medical profession. One dissenting or inefficient member of this organization will be sufficient to defeat the entire plan. One man failing to co-operate must not only later find that his own usefulness is hindered, but that the work of the profession is thereby seriously, if not entirely, crippled. We have much at stake and more will surely arise, presently, and in order to meet the varying and important conditions affecting our profession, we need the active and interested work of every individual in the profession.

When the medical profession as a whole realizes that its successful establishment depends upon the success of every member of that profession, then we can hope to obtain the first requirement for success, complete and perfect organization. This is not only true of the profession as a whole, but equally true of the individual physician, whose success often depends upon the success of an associated or neighboring physician. A weak, inefficient member of the profession is a distinct detriment, inasmuch as we are more often judged by our failures rather than by our successes.

It is the duty of the county society to provide its members with every facility for advancing their moral, physical and mental qualifications, and at the same time it should provide suitable facilities for the convenient and proper investigation of diseases, in order that accurate and useful means of diagnosis and treatment of diseases may be employed.

Individual and mutual literary and scientific improvement is best attained by co-operative study, combined with the interchange of experience and systematic investigation and instruction carried out by regular and careful post-graduate study.

By advancing the usefulness of the Augusta County Medical Association, the most important organization in existence so far as we here are concerned, we are contributing to the advancement of the local medical profession. In this way we are rendering the most efficient aid toward benefiting our fellowman, to whom nothing is so important, so very essential as the active work of an interested, aggressive, efficient medical profession—a profession capable of and at all times ready to conserve the public health, and thereby to preserve the Nation's wealth, the Nation's power.

It is not only necessary to have a competent physician, sufficiently educated to meet the requirements as imposed by the State Board of Examiners, but it should be required that this education be continued in the years of practice, and the State should exact a specific requirement to those seeking a renewal of the privilege to practice medicine. The certificate of regular post-graduate work, as approved by specified regulations, should be exacted of every physician re-applying for license, or he should be required every two or five years to pass an examination testing his qualifications for the practice of medicine. This is required by the United States Medical Service Departments of its Army and Navy, and surely, in the determination of the continued fitness of the medical attendant, the private citizen is justly en-

*Address of the President before the Augusta County Medical Association, at Staunton, Va., November 2, 1910.

titled to be surrounded with as much eare as the recruit.

Post-graduate work must be encouraged, and in the near future must be made obligatory. The need of a broader, better educated medical profession is imperative, for we are daily being confronted by graver and more important problems in medical treatment, sanitation and economics.

The States are awakening to the importance, the power for good of the medical profession, and when the time comes for us to exercise the trust that surely must be imposed upon us, let the profession be found entirely competent.

The day has passed for the pretender, the ignorant, idiopathic medicine man, the man mysteriously and ignorantly proclaiming himself. The trail of calamities found in the wake of such a physician is, to say the least, appalling. Shams and pretenses are things of the past, and he who boasts of some special and peculiar skill must find later that the public is demanding to know the nature and kind of services rendered, and rightly so. Upon the future success of medicine must depend largely the health and happiness of the people; therefore, it must follow that the more efficient the medical profession, the greater good will be returned to the people.

The medical profession is absolutely essential in health work, and an efficient profession is required, for upon an early accurate diagnosis may depend the control of some deadly communicable disease. Use all your power to serve the State to the best advantage, and in this way save the people all unnecessary expense and hazard, which service is of value to the people and to the public—to the State. If this service is of no value, it should be declared unnecessary and then dispensed with, but if it is of value, the State should compensate the medical profession for services that it alone is capable of rendering. Let the State and the people know that we value this service —that we value it sufficiently to demand compensation for it. No man should be required to contribute services of so valuable a nature to the people or the State without recognition and compensation. If this service is of no value, or of trivial importance, let the State dispense with it. The State dare not dispense with this service for the people are now awakened to the necessity and the importance of this health work. Then let the State hear our reasonable and logical appeal in the repeal of the special license tax measure.

At the same time, it is the duty of the physicians to continue the applications seriously to the advancing of medical education. The requirements as imposed by the State of Virginia upon the practice of medicine are far too trivial, and the curricula of the medical colleges in our State are in many things sadly deficient.

It is the duty imposed upon the medical profession to foster medical education in order that it may be lifted out of the pale of stigmata so often unnecessarily and unwarrantedly heaped upon it. Today your world is as large as you make it; a man is as narrow as his thoughts; you can extend the limits of your knowledge as you choose. To live today in this busy world, to live now when medicine is really accomplishing things, and yet to know nothing and "try to know nothing" of the wonderful progress of medicine beyond one's own circle or environment, is absolutely criminal. Today knowledge is not limited to a few: one must burst the bonds of selfishness, of clanism, of prejudice, and develop a larger, a broader conception of the possibilities of medicine and of the importance of the medical profession.

This organization, then, may be made the most important means for developing an efficient medical profession, capable of influencing public policies, beneficial alike to the people and the medical profession. It is possible, however, to accomplish this only when we recognize that it is absolutely necessary to be fully organized, both in the County and State.

"The first lesson to learn then is to organize, wisely, practically, efficiently, and then suborganize; reduce the work to a system as all great enterprises do. It is well to have clear in mind at first what ends are to be accomplished, then develop the plan of organization so that this is achieved. However, we find at times opposition only to be controlled by friction, and out of this flashes brilliancy of methods. To antagonize often unwittingly aids. Delegate special tasks to certain men; let the Association find what it needs, then set out to accomplish this."

The present organization of the State Society is insufficient, and this will be more

clearly demonstrated in the future, unless some plan is found whereby the relation between the State Society and the component society is made more secure. The State Society will find its usefulness seriously crippled unless it provides proper support to the county organizations, for in this way only can the state association expect to have efficient members throughout the State. At the same time the county societies find it difficult to maintain proper interest and membership unaided by the state organization.

It is common knowledge that the State has repeatedly failed to allow certain enactments sought by the State Medical Society, due in the main, to lack of organization and lack of cooperation on the part of the physicians throughout the State, while certain counties have demonstrated, where there is a county organization, their ability to secure proper recognition from the lawmakers in their section. Complete and perfect organization would have every doctor at his post, and then we would get results. A proper organization in the State would be the State Society with the component County Societies, and membership in the County Societies an absolute and essential prerequisite to membership in the State organizations

Then have an organizer to see that the work of the county societies is kept up to the standard, to see that regular post-graduate work is carried on systematically and is of sufficient literary and scientific value. The State Society could provide traveling libraries, exhibits, and supply lecturers on scientific medicine, or prevalent diseases, sanitation, etc., which would not only improve the physicians as a class, but would serve a better purpose, a higher obligation to the public, that of developing a better, a more efficient profession. Instead of a belated uninteresting biographical transaction, a live, up-to-date weekly magazine should come to the physician's table, thereby better assisting in the development of new and useful methods of practice. This would reduce the work of the medical profession to a method of business, and if we do this we will get results. "Many of the most influential and useful organizations had a small beginning, started by small and uninfluential men, but when they showed signs of success other and bigger and better fellows commenced to take interest, and then success was assured. The medical profession must profit by and imitate the methods of the great business associations."

This Association includes membership from both the City and County; therefore, it is unjust and illogical for it to attempt to arrange, or set uniform charges; besides our constitution wisely prohibits the fixing of fees by this society for just this reason. However, the time is opportune for some definite concerted action to be taken in a business-like way of this important subject. The business side of our profession should receive the attention it demands. The medical profession has neglected entirely too long and too much the business aspect of medicine. We cannot in this day, with the increased demands imposed upon us, depend upon unnecessary and ill-advised methods of obtaining proper and sufficient means for meeting the requirements of everyday life.

The keeping of case records, proper instruction and discussion of the most satisfactory manner of keeping accounts, rendering of statements, collection of accounts, and the management of past due accounts and delinquents should be fully gone into, and thereby establish uniform methods of practice. Should this plan be extended, one man could and would be employed to keep accounts, collect all slow or past due accounts, and this uniform business method of dealing with the public would not only enforce better collections, but would prevent to a large measure the passing of patients from one physician to another in order to dodge the payment of a just and often most modest request for the settlement of an account.

There are probably fifty active physicians at work in the County and City, who altogether lose, probably, by bad collections and improper methods of keeping books $20,000 annually. It is entirely possible by this plan of co-operation to save at least one-half of this, or $10,000, and in this way the financial side of our profession would certainly be improved. I submit for your consideration a plan as laid down in the *J. A. M. A.*, October 15, 1910, page 106.

Let the public understand that we value our work and are business-like in our dealing with all the people, and they will learn to value that service rendered them. If you do not value your services more than a mere pittance, and then not even request payment of your account for more than a year, often not until the account is out of date no wonder the people do

not readily compensate the physician. It is often said that the physician does not value his services sufficiently to send a statement, and in consequence the services become looked upon as requiring the same neglect by the patient. Impress yourself today with this idea that your services, first, should be the best that you are possible of giving; that you should value your own work; that you should let those employing you understand that you value your services, and that you expect a reasonable compensation, and this reasonable compensation will impress the people with the importance of medicine: that you expect and will demand and if necessity arises, will enforce payment of all accounts, and you will not only find this to your advantage, but to the common advantage of the medical profession as a whole.

The physician who prostitutes a noble calling by undercharging, or accepting lodge practice, practice which essentially puts the human life upon the bargain counter to be knocked down to the low bidder, damages both himself and the profession at large—himself first, because he admits at once that his services are of less value than his associates, or he would not render the service, or that he intends to give cheaper, and, therefore, inefficient services. Secondly, he lowers the caste of himself and invites criticism of the profession willing to admit that at present we have no way to prevent the bargaining of a life for a few pieces of silver. The people must understand that to practice medicine properly, efficiently, demands a fair remuneration in order that proper and sufficient time, so essentially necessary, may be taken with each case.

Do you know that forty thousand physicians in the United States are rated as absolutely "bad pay," unworthy of credit, and that twenty thousand are rated, "not to be trusted at all?" That we have "twelve times as many bad pay members as any other profession known?" No wonder at this when "the average pay of the physicians throughout the United States is only $1.70 per day, or about $625 per annum, less than a bricklayer or plumber gets," no wonder that many of them stoop to unfair and often criminal means for securing a living. Do not blame the profession for aught else than lack of business. Poor methods, lack of uniform methods, lack of organization, lack of co-operation, inefficient men, poorly educated, poorly equipped trying to hold on when they had better be at something else more suitable to them, more profitable indeed for themselves and far safer for the people. A physician in debt, hard up, constantly reminding people of the fact either by decrying his trade, or by the appearances of himself or family, due almost always to his own faulty methods, without the facility for maintaining a proper social and financial standing in his community is a distinct detriment to our profession. A man of this kind lacks influence and standing in the community, and at the same time is less useful as a physician.

The public recognizes that it is imperative for a physician to equip himself properly in order that he may successfully meet the varying and exacting duties of his profession. How can you be equipped unless you are financially able? Then the public patronizes the equipped physician. Will you, seeing a physician successful in practice and in financial matters, try to find out the secret of his success and then honestly and worthily imitate his methods, or will you, after knowing the cause of his success, seek to "profit by his example? Of course, you will." You will not decry this man, condemn him for your failure, your ill-success, for often if he had his way he would help you to a better success, a success you so richly deserve.

The selection of teachers for our large medical schools needs more careful attention. Men selected for this important work should be selected for their fitness, and not because of some special school, hospital, religious, financial, or political reason. Big broad-minded men are needed to inculcate into the susceptible minds of the medical students the necessary and fundamental knowledge of medicine for a successful after-career. Men are needed who will industriously apply all of their time to teaching and to preparation for teaching, and not men who will devote a few hours a week to teaching and the rest of their time to extending their personal and individual practice. Nor should this, the practically soliciting practice for the use of teaching purposes, be obtained in order that a great flux of patients may be had for the clinic. A teacher should be so paid that he would not be compelled to charge for work used in teaching, or cases employed in the clinics. The great flux of patients to the clinics may be, and often is, explained by

the reduced charges made to those abundantly able to pay. Such medical services furnished either free or at a reduced cost become a drain upon the local profession, and thereby furnish a potent cause for the lowered efficiency of the home physicians, a serious detriment to the profession. One should not be a party to the encouragement of, or obtaining of gratuitous services for those abundantly and fully able to pay, it matters not where you take that patient. An experience of many years leads me to conclude that many people are regarded and treated as charity that have as much as many of the physicians of the State. Do not think by this that I am passing over the truly charity patient; to him give your time and your means, and large and remunerative reward will be returned to you.

Ethics need to be better understood and revised to more clearly and accurately define the rights of the patient and the physician, and at the same time secure a more rational treatment of the subject. One needs to keep ever in mind, "Do unto others as you would have them do unto you."

PUBLIC HEALTH.

It is the duty of the profession at all times to adopt such measures as will prevent the spread of communicable diseases, and to advocate such measures as will prevent the dire results of certain contagious diseases. The reporting of communicable social diseases in the light of modern preventive medicine is just as necessary as the reporting of any other contagious disease. This class of diseases must be stripped of the secrecy of the past, be reported and dealt with in a manner compatible with the position of the modern sanitarian in the management of other and often less hurtful communicable diseases. In this way only can we make the people see that the medical profession is not only capable of, but will protect the public health at all times.

Recently I had under care five patients infected from one common source. It would not only be interesting but educational to follow the trail of this infection, to determine the economic loss from this one source of infection to the State. I believe the reporting of the "Social Diseases" would go a long way toward the solution of the great Social Disease Problem.

A recent sad experience connected with the transmission of communicable disease leads me to say that we should advocate teaching of the physiology and hygiene of the sexual function, and the theory of infectious and communicable diseases, their cause and prevention, in the public schools and colleges, and in schools—both public and private—as well as in colleges devoted to the teaching of females, the future mothers.

The medical profession should seek to establish such relations with the drug-trade, whereby at all times a uniform and pure supply of drugs and remedies may be supplied. At the same time, we should aid all legitimate efforts in the control of the proprietaries, and should wage an eternal and conquering warfare on the nostrum, the curse of modern medicine and pharmacy.

The use of proprietaries of unknown composition, and the use of nostrums by the medical profession rob the physician of his patient, who often becomes cursed with a drug-forming habit. This course cannot be justified by any argument, and can be explained only by gross and careless ignorance or inexcusable laziness on the part of the physician. These remedies accomplish their results at the expense of the physician's finances, and the patient's health.

A fair amount of criticism is due and expected, and should prove beneficial, though a proper understanding of the circumstances is absolutely essential and a due regard for the truth is imperative. "It is human nature to interest ourselves in the doings of our neighbor; however, the shortcomings of our fellowman do not furnish a wide field for our intellect." To talk of the petty affairs, personalities, trifling misunderstandings often generated by meddling tongues, is at best dangerously unimproving, and serves to kindle the spirit of intolerance, one of the oldest, one of the hardest to eradicate, and one of the most baneful habits of the human mind. When thus criticized, pick up the stones hurled at you and build for yourself monuments.

Interest yourself in the achievements of the thinking, working men of the profession, and a bigger and broader world is before you. Noble ambition combined with determination does not stop at small things; it aspires to greater achievements. To obtain results of this

kind, one must concentrate all his intellect upon his duties—the task before him.

"Yet each man, following his sympathies,
Unto himself assimilating all,
Using men's thoughts and forms as steps to rise,
Who speaks at last his individual word,
The free result of all things seen and heard,
Is in the noblest sense original.
Each to himself must be his final rule,
Supreme dictator, to reject or use,
Employing what he takes but as his tool;
But he who, self-sufficient, dares refuse
All aid of men must be a god or fool."

THE USE OF SALVARSAN.

By THOMAS B. LEONARD, M. D., Richmond, Va.

One is struck in reading the literature that reports are so conflicting regarding the new drug for syphilis, 606. To one who is experienced in its use, this difference in opinion is not surprising, but rather what would be expected.

There are so many methods of preparing the remedy we can scarcely count them, and as the effect of this drug, above all others, depends upon its correct preparation, it is no wonder that results are variable. It is impossible that all these different modes of preparation would produce the same delicate suspension necessary for it to act properly.

Having used all the different methods sufficiently often to draw accurate conclusions, I can say that any method which does not leave the finished product alkaline is comparatively worthless.

Further, that directions given with the commercial package of salvarsan, especially in regard to the suspension for intramuscular injection, have long been obsolete. Dr. Ehrlich himself now uses an alkaline, in preference to the neutral suspension. This latter method was used when the drug was first distributed for experimentation, but was soon found less desirable than the alkaline method. I might mention here that in neutral suspension the dose is only slightly painful, so that many men continued to use it, in direct opposition to Ehrlich's directions. Some of these very men are writing articles calculated to bring the remedy into disrepute.

My own experience with the drug has been entirely satisfactory; all of my imperfect results being easily accounted for by some mistake in technique. These have been very few, however, and cases have responded beautifully to a second dose without exception.

In conclusion, I do not want to be understood as saying that the remedy is the longed-for "therapia sterilizans magna." I do want to be understood as saying, that if quinine is a specific in malaria, just as surely is salvarsan a specific in syphilis. Again, as the dose of quinine to cure malaria is variable, so is the dose of salvarsan variable. Indeed, it is not at all unusual that a second dose is needed to produce a symptomatic cure.

In comparison with other remedies, cacodylate of sodium, or mercury, for example, arsenobenzol is far superior to either, or both.

Proceedings of Societies, Etc.

Medical and Surgical Society of the District of Columbia.*

Reported by JOHN DUNLOP, M. D.

DISCUSSION OF DR. COPELAND'S PAPER.

Dr. Atkinson complimented the speaker on his paper, and reported two premature babies, which were interesting in this connection. One was a 7-months baby, while the other was a 5-months baby.

Dr. King said that Dr. Copeland had gone so thoroughly into the subject in such a scientific way that he could not discuss it from that standpoint; he thinks that there is something in the maltose from Robinson's barley, which is especially valuable. He considers fresh air as being the most necessary thing in the digestion with children and has seen children improve almost instantly with pure air. He thinks those who feed infants from a scientific standpoint should consider pure air and the barley as important adjuncts.

Dr. Gwynn considers that pure milk is the secret of proper feeding, and not in its modification, and he believes that all ought to use Pasteurized milk in the summer.

Dr. Copeland, in closing, said it was not his intention to suggest any special modification. The point as to fresh air was well taken, as was that of clean milk, but thought that in these days these were taken for granted. He said that the maltose was used as a laxative and that the barley was used in modification and that it had a definite nutritive value. He does not believe

*Meeting of December 1, 1910.

that an acceptable food is the only object in infant feeding, but one which will supply the essentials for proper growth and development. He believes that in feeding premature babies human milk must be used, and preferably that of a mother with a baby about ten days old.

DISCUSSION OF DR. CARR'S PAPER.

Dr. Sowers said the nomenclature is the most confusing part in the proper understanding of the subject of immunity, and Dr. Carr had made it very clear. He referred to the recent article in *McClure's Magazine* as giving some of the essentials.

Dr. Miller thought it was a pity to have so many names, which brought so great confusion; he also referred to the recent article in *McClure's*, and suggested to all to read it.

Dr. Wilkinson said that there is no theory so beautiful as the defensive mechanism of the body. It is said that Ehrlich's side-chain theory will fit anything presented to it. He leans toward the French school. The only soluble toxines are those of diphtheria and tetanus. In most instances the poison is bound up in damaged or infiltrated cells. The French school offers, he thinks, more explanation against this type of toxins.

Dr. E. L. Morgan spoke of the very clear explanation given by Solis-Cohen.

Dr. McKimmie wants to know how anaphylaxis or sensitization of cells is explained.

Dr. Kober wishes to know how to account for tolerance of cells to large amount of drugs. Does not the molecular structure of cells change with the effect of the poison, and all new cells take this structure? Is not tolerance due to this?

Dr. Carr, in closing, said that his reason for reading the paper was that neither theory covered the whole ground, but that both together did. There is no question but that phagocytosis takes a great part in immunity, but Ehrlich's theory fills in the rest. He wishes especially to have us remember the fundamental ideas. In regard to soluble toxines, Ehrlich's theory has the most weight. In regard to localized infections, Metchnikoff's theory is most appropriate. With reference to the action of drugs (as conceived of by Dr. Kober) it seemed to him that it is hard to think of a permanent change of cells taking place. He feels that it is easier to think of drugs constantly flowing in the blood system.

REPORT OF CASES AND PATHOLOGICAL SPECIMEN.

Fracture of Metatarsal Bone.

Dr. Hickling showed an X-ray and reported a case of transverse fracture of the fifth metatarsal, caused by indirect injury. The treatment consisted of immobility and something to prevent flattening of arch. He said that metatarsal fractures were all thought to be due to direct blows, but now the X-ray has cleared up the subject and it is found that muscular action and sudden twists of the foot often produced the condition. He spoke of foot œdema of the soldier in olden times and how now they had found that this condition is really an unrecognized metatarsal fracture.

Adenocarcinoma of Bladder.

Dr. Hagner showed a specimen of a tumor from the bladder wall in a man 61 years old. A history of pain and bleeding in bladder region with profuse hemorrhage two weeks ago. The tumor was in the fundus of the bladder and was very friable. The tumor was under the bladder wall, but the wall was indurated. There was more of the mass outside than inside. This tumor was an adenocarcinoma. He said that tumors in the fundus have a better chance for recovery than those found in base.

DISCUSSIONS.

Dr. Copeland reports a case of multiple fractures of the metatarsals.

Dr. Kerr thanks Dr. Hagner and congratulates him on having added so much to the technique of bladder surgery.

Dr. Miller wishes to know if the operator looks through the cystoscope in placing the stitches.

Dr. Hagner says that the operator does all; that it is hard at times to keep one's technique perfect, but that all of these cases are infected and that all one can do is to keep as clean as possible. He explained the technique of the operation fully.

The Medical Examining Board of Virginia

Met in Lynchburg, December 20, 1910, Carroll-Hotel, 8:30 P. M.

All members were present except Drs. John G. Reinie, P. W. Boyd, R. M. Slaughter and E. T. Brady.

Dr. R. W. Martin, President, appointed a Special Oral Committee to examine No. 56. Committee reported him passed.

The minutes of the last meeting were read and adopted.

The President ruled that all applicants must take examinations as arranged at present in sections.

Dr. Glasgow introduced the following resolution, which was adopted: Each member in attendance shall be paid his railroad expenses to place of meeting and return. This is to amend Section 9, Article No. 2 of by-laws.

The President appointed the following as the Reciprocity Committee: Drs. James, Williams and Warinner.

The President appointed Drs. Old, Wright and Williams, Auditing Committee.

The Question Committee reported on all questions except Pathology and Bacteriology. Adopted.

Dr. Warinner moved to appoint a committee to draft resolutions suitable to the memory of Dr. Rodgers. Dr. R. S. Martin offered an amendment that same committee draft resolutions suitable to the memory or Dr. Landon B. Edwards. Drs. Warinner, Wright and James appointed.

Board adjourned.

The Medical Examining Board of Virginia met in Hill City Lodge, December 21, 1910, 5 P. M. Present, Drs. R. W. Martin, President; R. S. Martin, Secretary and Treasurer; Wright, Corey, Glasgow, James, Old, Williams, Warinner and Barney.

Auditing Committee reported as follows, which was adopted:

We, the undersigned Auditing Committee, have examined the books of the Treasurer and find them correct.

(Signed)

HERBERT OLD,
E. C. WILLIAMS,
O. C. WRIGHT.

The Oral and Reciprocity Committee made reports which were adopted.

Dr. Warinner reported the following resolutions in regard to the deaths of Drs. C. W. Rodgers and Landon B. Edwards.

We have heard with profound sorrow of the death of Dr. Landon Brame Edwards. The Medical Examining Board of Virginia, in session at Lynchburg, Va., December 20-23, 1910, desire to place on record the following:

Resolved, That in the death of Dr. Edwards this Board has lost a true friend, the profession a wise councilor and loyal member, and the State a noble man.

Resolved further, That a copy of these resolutions be spread upon the minutes of this Board and a copy sent to the family of our deceased brother.

(Signed) J. E. WARINNER,
O. C. WRIGHT,
R. B. JAMES.

We, the Medical Examining Board of Virginia, in session at Lynchburg, Va., December 20-23, 1910, note with sincere sorrow the death of our friend and former colleague, Dr. Charles W. Rodgers, of Staunton, Va., and whereas, we recall with pleasure our association with him and remember his good traits of mind and heart during the years of faithful work on this board; be it, therefore,

Resolved, That in his death our profession has lost a faithful member and the State a valuable citizen. We tender to his family our sympathy and assurance that though he is no longer among us he is not forgotten, and his good example will serve as a stimulus to us in future.

Resolved, That this expression of our esteem be spread on the minutes of our Board, and a copy sent to the family of Dr. Rodgers.

(Signed) O. C. WRIGHT,
J. E. WARINNER,
R. B. JAMES.

No. 64 having registered at the beginning of the third examination it was agreed by the Board that if he make the average that he be granted a temporary permit until the next meeting, when he will be required to take the remaining sections.

It was agreed that the Board meet in Richmond, Va., June 20-23, 1911. Dr. Glasgow moved that a committee be appointed to report at the next meeting in regard to requiring photographs and letters of moral character of all applicants. Drs. Glasgow, Barney and Old were appointed.

Dr. James moved a committee be appointed to investigate the feasibility of having a hall for all regular meetings of the Board Drs. James, Old and Corey were appointed.

Board adjourned.

R. W. MARTIN, *President.*

R. S. MARTIN, *Secretary-Treasurer.*

QUESTIONS FOR EXAMINATION OF APPLICANTS FOR CERTIFICATES OF LICENSE TO PRACTICE IN VIRGINIA, DECEMBER, 1910.

Theory and Practice of Medicine.

Dr. John G. Rennie and Dr. E. C. Williams, Examiners.

1. Give general symptoms of la grippe.
2. Name the complications of scarlet fever.
3. Give treatment of epidemic cerebro-spinal meningitis.
4. Give the diagnosis of diphtheria.
5. Give physical signs of tuberculosis of the lungs.
6. Give symptoms of pericarditis with serous effusion.

7. Give the causes of chronic gastritis.
8. Give the diagnosis of intestinal obstruction.
9. Define (a) myalgia, (b) rachitis, (c) diabetes-mellitus, (d) obesity and (e) tic douloureux.
10. From what has multiple neuritis to be differentiated?

Obstetrics and Pediatrics.

Dr. Herbert Old, Examiner.

1. Diagnosis of (a) generally contracted pelvis (justo-minor); (b) flat non-rhachitic pelvis; (c) flat rhachitic pelvis.
2. Describe a complete full term placenta with membranes intact after expulsion.
3. Diagnosis and treatment of inevitable abortion.
4. Management of the woman during pregnancy.
5. Indications for (a) forceps; (b) internal version.
6. Causes of temperature during the puerperium.
7. Describe pasteurization of milk, and state the indications for and the advantages of same.
8. Symptoms and treatment of acute pyelocystitis in infancy.
9. Symptoms and treatment of adenoid vegetations of pharynx in children.
10. Symptoms and treatment of acute suppurative otitis media in children

Anatomy and Histology.

Dr. O. C. Wright, Examiner.

Anatomy.

1. Describe the skeleton of the hand.
2. Give function, origin and insertion of triceps muscle.
3. Give their origin and name the superficial layer of muscles of the anterior radio-ulnar region.
4. Describe the thorax.
5. Describe the heart.
6. Name the branches of the arch of the aorta.

Histology.

1. Give the histological structure of the skin.
2. Describe the pleura.
3. Give distribution and description of Peyer's patches.
4. Briefly describe the tonsils.

Surgery

Dr. E. T. Brady, Examiner.

1. Why are vessels ligated? What are the chief dangers after ligation? What precautions minimize these dangers?
2. How would you treat (a) simple and (b) compound fracture of both bones of leg?
3. How would you distinguish between benign and malignant breast tumors?
4. What are most frequent abdominal tumors (a) before age 35, (b) after that age?
5. Distinguish between cerebral compression and contusion?
6. How would you dress a simple but dirty wound?
7. Why is a punctured wound more dangerous than an apparently more serious incised wound?
8. How would you treat an acute orchitis of specific origin?
9. How would you recognize and treat acute arthritis?
10. What are the chief obstructions to the upper air passages? How removed, and what are the dangers of removal, and non-removal?

Physiology and Embryology.

Dr. R. B. James, Examiner.

Physiology.

1. What is a ganglion?
2. What phenomena are caused when the motor oculi nerve is diseased or injured within the cranium?
3. Describe the nervous mechanism of micturition.
4. Describe the apparatus and mechanism of respiration.
5. Describe human blood, giving its chief constituents and their functions. Give the difference between blood plasma and serum.
6. What is normal blood pressure? How is it measured? Give some chief causes that influence blood pressure.
7. Explain the secretion of urine.
8. What are the two forms of muscle tissue? Where is each kind found?
9. Describe briefly the optic lers; the retina. How is the amount of light admitted to the retina controlled?
10. Give structure and function of spleen

Embryology.

1. Describe the fœtal circulation, giving changes that occur immediately after birth.
2. Describe the human ovum, and give a brief account of the ovum from the time it leaves the ovary until it is attached to the uterine endometrium in conception.

Homeopathic Materia Medica and Therapeutics and Toxicology.

Dr. Harry S. Corey, Examiner

1. What is a homeopathic prescription?
2. What are the three essentials of a homeopathic prescription?
3. What is the chief sphere of action of gelsemium, and describe briefly symptoms calling for remedy?
4. What is the most powerful cathartic in medicine, its dosage, and the homeopathic indications for its use in diarrhœa?
5. Give time of aggravation of arsenicum, Nat. Mur. lycopodium and eupatorium.
6. What is the cause of bryonia and nux vomica constipation?
7. Differentiate three remedies in acute suppurative processes.
8. Name three remedies in acute coryza with indications.
9. Describe tongue of mercurius and rhus tox.
10. Name five characteristics of arsenicum.
11. To what alkaloid is the poisonous effect of belladonna due, and what is its action on iris, secreting glands and spinal cord?

12. Give indications for causticum in cough.
13. What do you understand by ptomaine poisoning?
14. Should oil or fats be given in phosphorous poisoning, and give reason for your answer?
15. To what drugs are bad effects of headache powders due, and your treatment of poisoning by same?

Materia Medica.

Dr. Robt. Glasgow, Examiner.

1. Name the preparations of lithium with doses of each.
2. Classify expectorants, giving one example of each class.
3. What are cardiac stimulants? Mention several of the more prominent remedies of this group.
4. What are tonics? Give two general divisions of same, with two examples of each division.
5. Name two of the mineral acids, with preparations and doses.
6. What are anthelmintics? Mention three that are in common use, with dose.
7. What is diphtheria anti-toxin, how prepared and how administered? Give dose (1) curative (2) for immunization.

Therapeutics and Toxicology.

Dr. J. E. Warinner, Examiner.

Therapeutics.

1. Name with minimum and maximum doses the five most important preparations of mercury.
2. To what class of agents does aloes belong, and in what part of intestinal canal is its chief action?
3. For what purposes is blood-letting useful, and what drugs have taken its place?
4. Name and doses of drugs useful in treatment of angina pectoris, and explain their action.
5. What therapeutic measures are most esteemed in treatment of pulmonary tuberculosis?

Toxicology.

1 Give three important evidences of poisoning.
2. Define acute and chronic poisoning, and name drugs causing latter form.
3. Give chemical antidote for strychnine, opium, corrosive sublimate, arsenic and carbolic acid.

Hygiene and Preventive Medicine.

Dr. H. W. Dew, Examiner.

1. In what way is sewer gas dangerous to health? Does it communicate any disease?
2. How is bubonic plague usually spread? How would you manage an epidemic of it?
3. What is meant by a typhoid carrier? How would you prevent the spread of the disease from such a source?
4. What are chief diseases conveyed by milk? What is pasteurized milk? What is sterilized milk? What are the advantages and objections in each?
5. What is uncinariasis? How is it conveyed to man, and how would you prevent its spread?

Medical Jurisprudence.

Dr. P. W. Boyd, Examiner.

1. Give medico-legal definition of a wound.
2. What are the three methods of examining stains supposed to have been made by blood?
3. What is tenancy-by-courtesy?
4. Name the certain and uncertain signs of pregnancy?
5. Which electric current requires the higher voltage to cause death—the direct, or alternating current, and in what proportion?

Chemistry.

Dr. J. N. Barney, Examiner.

1. Give the preparation, properties and uses of Cl.
2. Give the preparation, properties and uses of $Hg Cl_2$ or Hg Cl.
3. How is HI made?
4. Define an "homologous series," and give an example.
5. How is $C_2 H_4 O_2$ obtained, and state uses of compounds in medicine?
6. State medical uses of: 1. $H_3 BO_3$. 2. $Ag NO_3$. 3. $N H_3$. 4. $Mg So_4$

Answer any 2.

7. Describe NA, and name 3 salts used medically, describing preparation of one.
8. Name test for indican in urine
9. Name 4 vegetable acids, and sources of each.
10. Define: 1. Celluloid. 2. $C H_4$. 3. Glucoside. 4. Di-Basic acide. 5. $C_6 H_5 N H_2$.

Answer any 2.

Pathology and Bacterioiogy.

Dr. R. M. Slaughter, Examiner.

1. Define the term edema, and give the principal causes of this condition.
2. In what diseases are a marked increase of eosinophiles of diagnostic importance?
3. Upon which of the surfaces of the body does catarrhal inflammation occur, and what may be the character of the exudate in this variety of inflammation?
4. What essential differences take place in the organs affected in true and in false hypertrophy?
5. What is endro-carditis, and to what diseases is it generally secondary?
6. What are fibro-myomata, and in what organ are they most commonly found?
7. Name the bacteria most frequently associated with inflammation and suppuration, and give the morphology (form and shape) of each variety.
8. What is meant by the term phagocytosis, and what is accomplished by this process?
9. What is the difference between saprophytic and pathogenic bacteria? What is the effect of sunlight upon pathogenic bacteria?
10. Name the bacteri associated with leptomeningitis, epidemic meningitis, and basilar meningitis, respectively.

Alphabetically Arranged List of Applicants for License to Practice Medicine, Surgery, Etc., Who Passed Satisfactory Examinations Before the Medical Examining Board of Virginia During Its Session, December 20-23, 1910, Lynchburg, Va.

Anders, Mc. G., Gastonia, N. C., Maryland Medical College, 1901.

Abbitt, J. W., Port Norfolk, Va. University of Maryland, 1910.
Brumback, J. E., Williamsburg, Va. Baltimore Medical College, 1909.
Breckenridge, W. N., Norfolk, Va. University of South, 1904.
Cuthbert, E. P., Evans City, Pa. Hahnemann Medical College, 1894.
Chapman, Wm. T., Uniontown, Pa. Leonard Medical College, 1907.
Browne, Fred. P., Childsburg, Va. Physicians and Surgeons, Baltimore, 1904.
*Davis, T. N., Jr. Lynchburg, Va. University of Va., 1911.
Fellers, Wm. B.; Roanoke, Va. University of Maryland, 1910.
Gummill, W. P., Millville, Pa. Maryland Medical College, 1904.
Grant, M. L. T., Scrabble, Va. Leonard Medical College, 1910.
Haden, W. D., Charlottesville, Va. University of Va., 1910.
Hundley, Preston, G., Baltimore, Md. University of Maryland, 1909.
Jones, B. F., Danville, Ky. Howard University, 1890.
King, Henry C., Washington, D. C. Hahnemann Medical College, 1907.
Kabler, Wm. G., Bristol, Va.-Tenn. Tennessee Medical College, 1904.
Kucera, Jerome T., Norfolk, Va. University of Ill., 1908.
Melton, James M., Moormans River, Va. Vanderbilt University, 1901.
Mason, James, Durham, N. C. Leonard Medical College, 1909.
Morse, N. N., New York. Harvard University, 1904.
Mann, C. C., Petersburg, Va. University of Buffalo, 1895.
Noland, E. B., Leesburg, Va. Physicians and Surgeons, Baltimore, 1910.
Newman, R. H., Thaxton, Va. University College of Medicine, 1909.
Opinsky, A. G., Coney Island, N. Y. Medical College of Va., 1910.
Powell, Robt. L., Washington, D. C. George Washington University, 1909.
Quincy, F. B., Pocahontas, Va. Medical College of Va., 1900.
Richardson, Huger, Anderson, S. C. Medical College of S. C., 1910.
Roberts, N., Alexandria, Va. University of Penn., 1897.
Rhodes, R. L., Roanoke, Va. Johns Hopkins University, 1910.
Ross, A. H. S., Brucetown, Va. University of Penn., 1906.
Sanders, P. C., Pound, Va. University of Louisville, 1910.
Thaxton, John F., Buchanan, Va. University of Louisville, 1910.
Wickliffe, T. F., Nairr La. Tulane University, 1903.
Wallace, A. L., Scrabble, Va. Leonard Medical College, 1910.
Walker, R. R., Washington, D. C. Georgetown University, 1900.
Yokeley, S. H., Buena Vista, Va. University College of Medicine, 1909.

* Certificate will not be granted until applicant gets diploma in June, 1911. Full course completed, but will not receive diploma until above date.

Department Of Analyses, Selections, Etc.

CONDUCTED BY

MARK W. PEYSER, M. D., RICHMOND, VA.
Secretary Richmond Academy of Medicine and Surgery, etc.

The Transfusion of Blood. Report of Twenty Cases.

H. P. Cole, Mobile, reports the result of transfusion in twenty cases of pellagra, all in the last stages of the disease. The ages of the patients ranged from three to fifty-three years. There were twelve recoveries, or 60 per cent., and eight deaths, or 40 per cent. Heretofore, notwithstanding medical measures, the death rate has been from 80 to 90 per cent. Among the eight deaths there was improvement after transfusion in only two cases. These presented complications incompatible with recovery; one complicated by tubercular peritonitis showed temporary improvement for several days, but died one month after operation. The second case, a boy aged three, showed distinct improvement following transfusion, but died eight days later from intestinal perforation. Two of the fatal cases received an inadequate amount of blood at transfusion due to the unsuitable donors available.

The patients recovering gained from three to eight and one-half pounds in the first week following transfusion, one gaining thirty-four pounds in eleven weeks. Only one of the fourteen relapsed, and that not until two years after making a complete recovery and remaining free of symptoms for that period of time. As this patient was constantly exposed to pellagra, it is fair to assume that it was a second attack rather than a relapse.

The author states that he has been unsuccessful in ascertaining any constant clinical sign that would indicate a certainty of recovery following transfusion. The necessity of transfusion can only be ascertained upon the appearance of positive retrogression after careful observation and the employment of all approved institutional and constitutional therapeutic agents. A majority of the cases referred for transfusion have recovered through hygienic and supportive treatment without resorting to transfusion.

The conclusion reached by the author and by Dr. Gilman J. Winthrop, of Mobile, who

collaborated in the work, is as follows: After transfusing twenty-nine cases of pellagra in the terminal stages and noting no complications resulting from the operations, we feel we may safely resort to transfusion in the terminal stages of the disease when all other approved therapeutic agents have been employed without avail.

There is no necessity of selecting a relative as donor or selecting a donor who has recovered from pellagra.

We are unable to say that there is any immune principle transferred by transfusion. The rapid alleviation of symptoms, increase in hemoglobin index, and increase of body weight indicate that the beneficial results are attributable to the relief of the existing anemia.

The transfusion must be undertaken with a full knowledge of the difficulty and danger of the operation, and careful post-operative supportive treatment must be instituted for a considerable period of time following it.—(*Jour. Record of Med.,* Feb., 1911.)

Physiological Measures In the Therapeutics of Nervous Disease.

Tom A. Williams, Washington, says that the purely empirical concept of disease and its treatment which formerly was so general, is responsible for the relegation to charlatans of many useful measures, which were not taught formerly in the medical schools.

All disease and all treatment should be regarded in terms of departure from correct function, and all remedies should endeavor to restore healthy function. When the cause of disease cannot be removed, its consequences may some times be offset. The drugs which do this are often deleterious otherwise, either by interfering with nutrition, disturbing metabolism or poisoning the nerve or muscle cells.

This consideration is particularly pertinent as regards the disease of the nervous system, for in no branch of medicine has there been applied so little of the penetrating intelligence and clarity of view, which now distinguishes work in many other fields. But recent neurological labors have supplanted confusion by precision; and the processes at the root of many nervous perturbations become clearer every day. The so-called auto-intoxications, the disturbances of the internal secretions, the serious effects of purely psychological attitudes, and the role of the infections have each contributed to eliminate from nosology such an *olla podrida* as Beard's neurasthenia and such a vague and largely artificial disorder as was hysteria as formerly conceived.

Of a thousand "nervous" cases, about eight hundred were at one time classed as "functional," and were relegated to a purely empirical therapy. No attempt was made to penetrate the pathogenesis of these conditions. But they were shot at with a blunderbuss in the hope that one of the missiles might bring down the morbific agent. Hence, the general insistance upon *all* the elements of a course of treatment, which comprised rest, massage, exercises, baths, electricity, occupation, encouragement, and that unprescribable quantity—the personality of the physician. This often succeeded where the pharmaceutical blunderbuss had failed. It is small wonder, for the pharmacodynamics was applied in the very direction to do most injury to the patient; for instance, the giving of bromides to patients whose agitation was in reality due to impaired efficiency of the cerebral cortex; the giving of strychnine in fatigued states, where cells required rest and not whipping; the producing of sleep by narcotics, when the need was oxidation rather than stupefaction; the prescribing of so-called antispasmodics in cases of which the pathogenesis was purely psychical and where the physical results were best treated when most ignored.

But of the physiological means, none in itself was out of harmony with the needs of the organism even in health; oxidation was stimulated by baths and massage; fatigue was diminished by rest; tranquillity of mind was given by abstraction from cares; intoxication was diminished by an appropriate diet, etc. Only the cause of the disease escaped attack; the patients were not taught the reason of their illness, nor how to live in the future; hence relapses were frequent.

To avoid the discredit of such failures, the pathogenesis of every case should be kept in mind during its treatment. Thus, it is folly to prescribe a course of eliminative baths and electrical calmatives to a patient whose symptoms clearly arise from an ill-balanced dietary. The proper treatment is to remove the cause by prescribing a proper diet, and to teach the patient how to keep well by controlling his food.

Again, douches to the spine and static electricity are not only useless, but even tend to perpetuate the disorder of a patient whose symptoms have a psychological source. Still worse, a so-called rest cure may be of the greatest injury to a patient whose mind is obsessed by some trouble which is the cause and not the effect of the physiological break-down for which advice is sought.

Personal Experience With A Very Restricted Diet (Rice) in Acute Inflammatory Disease of the Skin.

L.Duncan Bulkley, New York, has found of great use in cases treated by him, as well as in a skin affection experienced by himself, a restricted diet consisting of boiled rice, with bread and butter, to be carried out for about five days at a time. The acute inflammatory diseases of the skin are marvelously well affected in a few days by the use of this diet. It is productive of relief, especially to the itching and burning of these affections. Diet has a very great effect on skin diseases. An improper diet renders the tissues of the skin more susceptible to the action of micro-organisms. Proper liver action and phagocytosis account for the increased resistance of the skin. A deranged action of the chylopoietic organs is another factor in the production of skin diseases, producing deranged circulation. Illustrative cases of the use of the rice diet are given. Imperfect or deranged urinary secretion has much to do with the causation of skin diseases. Proper kidney action is assisted by the exclusion from the food of the nitrogenous elements of the diet. The patient feels better, lighter, and freer while taking the rice diet. The five days of non-nitrogenous diet causes an increased output of nitrogen, which is lessened when a return is made to the ordinary diet.—*Medical Record*, January 28, 1911.

Editorial.

Blood Cultures—Their Importance and Availability.

In recent years the technique of blood cultures has been so perfected that this procedure now constitutes a readily available laboratory test as an aid in medicine and surgery. The results from a blood culture are definite and clean cut, but it must be borne in mind in the case of this, as of other clinical laboratory aids, that the significance and importance of the laboratory findings can be appreciated only by correlating them with the clinical picture and bed-side studies.

The technique of making a blood culture is very simple. A hypodermic needle attached to a 10-20 c. m. syringe is introduced into a superficial vein under strict aseptic precautions, and several cubic centimeters of blood are withdrawn. The vein at the bend of the elbow is usually selected. The blood is immediately distributed, 1-2 c. m. at a time, into several different kinds of culture media, plain melted agar and melted glucose agar for plating, and plain and glucose broth in 100 c.c. flasks. Special media such as bile, or serum agar may be employed if indicated. If the blood contains bacteria, they will appear in the cultures within 1 to 2 days as a rule, but the cultures must be observed for at least eight days before they are pronounced sterile. This procedure is not restricted to hospital practice, but the blood may be drawn from a patient at his home and carried in the syringe to the laboratory for examination. In this case the blood may be kept fluid by the addition of a small amount of 1 per cent. sterile citrate of soda solution.

The organisms usually found are B. *typhosus* and *paratyphosus*; *streptococcus pyogenes, pneumococcus,* and their closely allied varieties; *staphylococcus aureus* and *albus;* while among those not so commonly found are *gonococcus, staphylococcus citreus,* B. *coli,* B. *pyocyaneus,* B. *influenzæ and* B. *ærogenes capsulatus.* The conditions in which different observers have reported blood cultures positive in various percentages are: typhoid and paratyphoid infections, early stages of lobar pneumonia, post-abortive and post-partum infection (either with or without pelvic venous thrombosis), acute and chronic infective endocarditis, acute osteomyelitis, thrombosis of the sigmoid sinus complicating mastoid disease, acute leptomeningitis from various causes, ascending renal infections, severe furunculosis and its sequelae, malignant infections of subcutaneous tissue, usually of traumatic origin, etc.

In many cases the bacteria are apparently

not multiplying in the blood, but are mechanically set free into the blood current. Many bacteriemias are of a transitory nature and a large number clear up after eradication of the primary infection from which the bacteria originate such as a focus of osteomyelitis, an infected thrombosed sigmoid sinus, etc. We also know that extensive local infections can exist without bacteriemia, some types of infection being remarkably free from this complication. Erysipelas, follicular tonsillitis, ordinary phlegmons, mammary abscess, peritonitis, portal pylephlebitis, cholecystitis, and uncomplicated mastoid disease belong to this class. This indicates that there are other causes for bacteriemia in addition to the existence of a local infection. Something seems necessary either to introduce the bacteria mechanically into the blood stream, or to cause infection of the systemic veins with the development of secondary septic thrombi. Thus transient bacteriemia may arise after such a simple procedure as the passage of a sound or after cystoscopy, if the urethra or bladder is previously infected.

It has been supposed that bacteria are removed from the circulation by the phagocytic and bactericidal action of the blood alone; but it is now known that they can also be excreted in the urine, the bile, the sweat, and by the mammary glands. Hess has shown that the normal intestine excretes bacteria from the circulating blood and Lamar that purely chemical forces are also concerned in the light of the body against invading microbes.

The recognition of the existence of bacteriemia is frequently of the greatest importance. Especially in obscure febrile diseases, a positive blood culture may lead to the detection of an otherwise unsuspected focus of infection and thus guide the surgeon to the correct treatment of the case. Negative cultures may be equally valuable. This is particularly true if a blood culture is negative after one or more positive cultures have been obtained from the same patient. Repeated cultures may be of great value for both treatment and prognosis; a continuance of bacteriemia indicating that the treatment has not been successful, while its disappearance justifies a favorable prognosis. If bacteria continue to be found in the circulating blood after thorough surgical treatment of the original focus of infection, the reason is to be sought in some other focus of infection, such as endocarditis. A true "septicemia" with multiplication of bacteria in the circulating blood is probably of rare occurrence.

Great differences of opinion prevail regarding the value of vaccine therapy in cases of bacteriemia. On the whole it would appear that this form of treatment gives inconstant results, but sometimes is beneficial. It is clear that the regular use of blood cultures will prevent much useless or even dangerous treatment of the patient. The difficulty of generalizing as to the prognosis in cases of bacteriemia is very great; the types of cases studied are various; statistics are meagre; methods of study are dissimilar. With the statistics at hand we have gone far enough to learn that the prognosis is not necessarily desperate in all cases in which bacteriemia exists, there being records by different observers of from 7 per cent. to 43 per cent. of recoveries in various groups of cases with positive blood cultures. In the case of typhoid fever we now know enough to say that undoubtedly there is an early bacteriemia in every case of this disease, and yet its mortality is only about 10 per cent.

William Thalhimer, M. D.,
University of Virginia.

The Tri-State Medical Association of the Carolinas and Virginia

Convened for its thirteenth annual session February 22nd, in Raleigh, N. C., continuing in session for two days. About one hundred and forty members registered attendance. Being composed of about three hundred and fifty representative members of the State Medical Societies of Virginia, North and South Carolina, this Association is recognized as one of the foremost medical associations of the South. Dr. Hubert A. Royster, of Raleigh, Chairman of the Committee of Arrangements, and his able co-workers, looked after the pleasure of the guests at all times. A number of private entertainments, theatre parties, etc., were provided for the entertainment of those present, with a large reception at the Capitol Club on Wednesday evening. A buffet luncheon, served by the nurses, was tendered the doctors at Rex Hospital on Thursday.

The address of welcome was delivered by Governor W. W. Kitchin, of North Carolina, and responded to by Dr. A. E. Baker, of

Charleston, S. C. Dr. Joseph A. White, of Richmond, Va., showed his great executive ability in the way in which he presided over the meeting and managed the large number of excellent papers on the program. His address on "Preventive Blindness" was most able and comprehensive, and the Association directed its publication for the widest distribution possible.

The next meeting will be held at Columbia, S. C., February 21-22, 1912. Officers elected for the ensuing year are: President, Dr. J. Howell Way, Waynesville, N. C.; Vice-Presidents—Drs. William E. Anderson, Farmville, Va.; Thomas E. Anderson, Statesville, N. C., and F. H. McLeod, Florence, S. C.; Secretary-Treasurer, Dr. Rolfe E. Hughes, Laurens, S. C.; Councilors for Three Years—Drs. E. C. Register, Charlotte, N. C.; Samuel Lile, Lynchburg, Va., and W. W. Fennell, Rock Hill, S. C.

The selection of Dr. Way as President is most appropriate, as there could hardly be found a man more interested in the welfare of, and better acquainted with, the workings of the Tri-State Association than Dr. Way, who for the past five years has made the Association such an efficient Secretary. As an ex-member of the State Board of Medical Examiners, ex-president of his State Medical Society, and member of the State Board of Health for the past several years, he has proved himself most worthy of this last honor which has been bestowed upon him.

Dr. Hughes, the newly elected Secretary, is already familiar with his work, having been Secretary-Treasurer for four years prior to the election of Dr. Way, at which time he was also elected President. His re-election to the position shows the esteem in which he is held by the members of the Association and their appreciation of his former services.

The Virginia Health Department

Has had printed a Health Almanac—the first publication of its kind in the State—which, in addition to the usual information given in almanacs, tells farmers the proper time of year to repair wells and avoid typhoid fever. It also gives brief directions regarding diseases which appear in the various months of the year, health proverbs, and, for each date of the year some important event in the history or advances of medicine and science, especially in Virginia. The object of this calendar is to show the public that with proper precautions, good health may be enjoyed by every one at all times. Copies may be had free upon request to the State Health Department, Richmond.

It is also the purpose of the Department to issue shortly, probably in one of the Bulletins, Municipal Sanitary Regulations, under the especial direction of Dr. Roy K. Flannagan. These should prove of benefit to the Councils of the smaller cities and towns in the State by setting before them ordinances which have proved effective in other cities (some having been tried in the courts and proved valid) in regard to the control of nuisances, the disposal of refuse matter, and rules which should govern milk and food supplies and other matters of a similar nature.

Undergraduate Surgical Association.

The students of the third and fourth-year classes of the University College of Medicine of Richmond have recently organized an Undergraduate Surgical Association according to the plan adopted a few years ago at the University of Pennsylvania and endorsed by the American Medical Association. The officers are: President, W. M. Burnet; Vice-President, O. L. Hamilton; Secretary-Treasurer, C. J. Allen.

The Association meets every Thursday evening, at which time papers are read and afterwards freely discussed by those present. The meetings are largely attended by both students and members of the faculty, who also participate in the discussions.

New Professors at University of Pennsylvania, Philadelphia.

Dr. John B. Deaver has been appointed to succeed Dr. Edward Martin as professor of clinical surgery, the latter becoming John Rea, professor of dermatology.

Dr. Alfred Stengel, formerly professor of clinical medicine, will succeed Dr. David Edsall as professor of medicine.

Dr. Abraham Jacobi of New York Again Honored.

Dr. Jacobi has recently had conferred upon him the honorary degree of M. D. by the University of Bonn, from which he received his

first degree fifty-nine years ago. He was also elected an honorary member of the Medical Society of Berlin at the time of its semi-centennial celebration.

The University of Pennsylvania,

On the occasion of the University Day Exercises, held February the twenty-second, was presented, with portraits of Drs. Samuel G. Dixon and Louis Starr, by some of their friends and former students. It was a most noteworthy tribute and compliment to both doctors who were present on the occasion.

The S. P. Latane Anti-Tuberculosis Association,

Of Winchester, Va., has engaged the services of a visiting nurse to fight the white plague in that city. It is hoped the work will prove of such benefit as to warrant the continued support by the Association of a nurse for this purpose.

Dr. W. Brownley Foster,

Chief Health Officer of Roanoke, Va., has been highly commended by the Roanoke Academy of Medicine upon his excellent work and the first Bulletin of the Health Department of that city, which he has recently issued.

The Isle of Wight Medical Association,

At its annual meeting, elected Dr. S. B. Angle, of Windsor, president, and Dr. R. Lee Seward of Isle of Wight, secretary and treasurer (re-elected). The Association holds its meetings quarterly.

Department of Health, Norfolk, Va.

The new bacteriological laboratory, fully equipped to meet the needs dependent upon it, has been removed to the Department's headquarters in the Armory Building.

Dr. H. H. Henkel

Has succeeded the late Dr. E. Lacy Gibson, as physician to the Staunton Virginia Military Academy.

New City Hospital.

Lynchburg, Va., is to have a new City Hospital in connection with its almshouse property. The site for the hospital has already been selected, and the builders will soon begin their work.

Obituary Record.

Dr. Aloysius O. J. Kelly,

Distinguished as diagnostician, educator and writer, died at his home in Philadelphia, February 23d, from a complication of troubles resulting from influenza. He was in his forty-first year, having been born in Philadelphia, June 13, 1870. He was graduated in medicine from the Medical Department of the University of Pennsylvania, in 1891, after which he took a post-graduate course in European schools, making a special study of pathology and internal medicine. He was an associate professor in the University of Pennsylvania, and professor in the Woman's Medical College of Pennsylvania and the University of Vermont. For several years Dr. Kelly was editor of the *American Journal of the Medical Sciences,* in which position he achieved distinction as in all other branches of medicine which he entered. He was co-editor with Dr. J. H. Musser of a series of books on "Practical Treatment," two volumes of which are yet in the publisher's hands and will be issued shortly.

Dr. Wallace Deane Carr,

Who died suddenly from heart disease at his home in Richmond, Va., February 24th, was born in Baltimore, Md., August 19th, 1875. He was a son of the late Dabney Carr, and on his mother's side was a grandson of Dr. Francis Deane, for years a prominent physician of Richmond. He received his academic education at McGuire's University School, Richmond, and later studied medicine at the University College of Medicine, graduating in 1908, at which time he was appointed one of the internes at the Richmond City Hospital. He became a member of the Medical Society of Virginia the same year. He left the City Hospital to accept a position as interne at Gouverneur Hospital, New York. About a year and a half ago, he returned to Richmond, since which time he was associated in practice with Dr. Edward McGuire. Dr. Carr was one of the most promising of the younger doctors of Richmond, and his death has cast a gloom over a wide circle of friends, with whom he was universally popular.

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Original Communications.

THE VALUE OF LAVAGE IN THERAPEUTICS, AND ITS FREQUENT NEGLECT.*

By GEORGE P. HAMNER, M. D., Lynchburg, Va.

It is not my purpose in this paper to enter into a detailed enumeration of the various diseases and affections that are treated by this method, but to rather offer in a general way, and under one general head, those which may be cured, improved or palliated by lavage.

Reversing the order of the title, I wish, first, to say a few words regarding the neglect of so valuable an agent by those who follow general medicine, and who, first of all, should ever be ready to resort to any rational method of treatment that will give reasonable hope of relief to their patients.

It is really surprising that so simple, so safe, and yet so effective a therapeutic measure should be so little used; and I can hardly think that this is because it is not appreciated, or that it is through ignorance of its value, or of the technique, (which is simple enough for any one to acquire with very little experience) that lavage is not more frequently given the precedence of so much and such promiscuous drugging in many gastric affections; and in those gastric diseases in which there is no real contraindication. Certainly it is not through fear of untoward results or accidents that the profession does not employ it more in general practice. I grant that many of us are somewhat slow at times to adopt methods which require time and trouble on our parts, and are even guilty of that which approcahes very nearly to indolence, or putting it more mildly, indifference. But as this procedure is so quickly and easily performed no one should hesitate at the trouble when such gratifying results are most sure to reward him for his efforts.

*Read before the forty-first annual meeting of the Medical Society of Virginia, at Norfolk, October 25-28, 1910.

TECHNIQUE.

No other kind but a soft elastic rubber tube should be used; personally I prefer the Hemmeter tube, a modification of the Ewald, to any I have seen. It differs from the ordinary stomach tube in that in addition to the end and side openings common to all kinds, it has about twenty-eight smaller holes within the first two inches from the end. It is also of a better grade of rubber than the others and highly polished, which greatly facilitates its passage.

Before introducing the tube for the first time the object, utility, and harmlessness of the procedure should be carefully explained; and whenever possible it is always best to give to very timid patients an apportunity of observing with what ease more experienced patients introduce the tube on themselves. This has a most reassuring effect.

Weak and old persons should be treated on the bed, others may be treated in the erect sitting posture. Several thick towels should be placed beneath the chin and on the patient's chest, or the clothing be protected by a rubber sheet or apron drawn up close under the chin.

Dr. Fenton B. Turck, of Chicago, has devised a useful rubber pocket, which is suspended under the chin and protects the garments of the patient from the mouth discharges. If the throat and fauces are very tender and sensitive (often the case in excessive smokers), it is advisable to precede the introduction of the tube by spraying the throat with a three per cent. solution of cocaine hydrochlorate.

If the patient is quiet and composed, it is safe to let him introduce the tube, himself, even

for the first time, the main points to impress upon him being these: 1st, to swallow several times when the tube has reached the root of the tongue; 2nd, to breathe deeply and regularly; 3rd, to push the tube with both hands as soon as it has turned downward into the esophagus. Involuntary or unintentional coughing must be suppressed by exercise of the will, as it will inevitably prevent the point of the tube from entering the esophagus and turn it back into the mouth. Of course the more passive and quiet the patient the easier can the procedure be carried out. It is not necessary for the patient to open his teeth any wider than just to admit the tube; at the same time cautioning him not to bite on it, but to breathe deeply and naturally. It is always best to use both hands in pushing the tube.

After it has passed the glottis, catch hold of it about two or three inches from the mouth and rapidly complete the introduction. Avoid seizing the tube further than this from the mouth, as then it will kink on pushing it.

It is not necessary to lubricate the stomach-tube with any oil or vaseline—there is generally sufficient mucus in the esophagus to facilitate the passage. It is sufficient to moisten it with water.

The Depth.—In the normal position of the abdominal viscera the location of the cardia corresponds to the spinous process of the ninth thoracic vertebra. By counting off this process on the back of the patient and placing the upper eye of the tube against it, one can measure the length of tube necessary to reach the stomach by applying it from this point along the back, passing along side of the ear to the front incisor teeth. This point can then be marked on the tube so as to avoid passing the tube in or out to ascertain whether it has reached the stomach after being introduced. In dilatations and falling of the organ, the length of tube required can, of course, only be learned after a previous lavage. Ordinarily it will be found that between eighteen and twenty-four inches of tube is sufficient to reach the stomach.

It is very important to use graduated wide-mouthed, transparent glass bottles of about one quart capacity for lavage. At least two such bottles are needed—one to pour the water into the funnel, the other to catch the outflow. This outflow should always be measured, and efforts to regain the entire quantity that has entered the stomach must be made before an additional supply is poured in, as neglect of this precaution may produce dangerous over-distention of the organ.

CONTRAINDICATIONS FOR LAVAGE.

Lavage and introduction of the tube are contraindicated:

1. In all constitutional and local conditions which may be aggravated or life endangered by the irritation and exertion of lavage:

a. Pregnancy.

b. Heart disease with a state of defective compensation—heart neuroses, angina pectoris, myocarditis and fatty heart in an advanced stage.

c. Aneurism of the large arteries.

d. Recent hemorrhages of all kinds, including apoplexies, pulmonary, renal, vesical, gastric, rectal and hemorrhagic infarctions.

e. Advanced pulmonary tuberculosis.

f. Advanced pulmonary emphysema with bronchitis.

g. Cerebral hemorrhage.

h. Advanced cachexia.

i. Presence of continued or remittent fever.

2. The stomach and intestinal diseases which are contraindications for the use of the tube are:

a. Ulcer, with recurrent hematemesis and evidence of blood in the stools.

b. Palpable carcinoma of the pylorus, with vomiting coffee-ground material, and the classical symptoms of cancer.

c. Stomach and intestinal troubles with acute fever.

d. Hypersensitive gastric mucosa easily started to bleeding.

e. Secondary gastric affections whose dependence upon a distinct and more important primary disease is evident.

These are not invariable rules, however, and cases may occur under some of these exceptions that at times peremptorily require lavage on account of depressing self-intoxication from the stomach, or advanced gastric fermentation. Under such conditions it would be perfectly justifiable to employ it in advanced pregnan-

cy, typhoid fever, and even in cases of heart lesions.

RATIONALE.

The Hemmeter tube is passed, and by means of the numerous small openings situated in the first two inches of it, in addition to the end and side openings common to all tubes, a spray is thrown on the mucus membrane of the stomach, which not only serves the purpose of dislodging any undigested particles of food that may be adherent, but the spray cleanses the walls of mucus, entering the folds and acts as a gentle massage and stimulus in toning up the walls and glands of the stomach.

From this stimulation there may be a slight temporary hyperacidity, and this is undoubtedly the case occasionally, as lavage may, and often does, produce a sense of hunger immediately upon its performance, but such a hyperchlohydria is only fleeting and is counterbalanced by the removal of pre-existing excessive amounts of hydrochloric acid and the ready and efficient alleviation of the discomfort and pain in many cases due to the congestion and tenderness produced by the hyperacidity.

In gastric ulcer there is almost invariably hyperacidity which can be greatly relieved by lavage, and in those cases in which lavage is contraindicated the tube may be passed to a point just within the cardia and a solution of bismuth subnitrate in olive oil introduced through it, or other drugs, thereby rendering nausea much less likely than if given by the mouth.

In ordinary cases of gastric disorders in which lavage is indicated and the circumstances are such that the daily services of the physician cannot be had, a graduate nurse can be instructed to perform it or the patient taught by the physician to use the tube on himself with safety and most gratifying results.

ACUTE GASTRITIS (OTHER THAN THAT CAUSED BY POISONS).

In acute gastritis even after emesis there is frequently persistent vomiting of an uncontrollable nature, due to either retention of a portion of the fermented food or whatever irritant that was responsible for the attack, or to harmful bacteria introduced with the food. The surest and quickest treatment for this condition is to evacuate the stomach with the tube and disinfect it with the following solution:

℞.

Thymol	Gr. viij
Boric acid	Oz. ss
Warm water	Qt. j

M. Sig. One pint through stomach tube.

The water used during lavage should be quite warm and the antiseptic not used until the plain water runs out perfectly clear. The antiseptic should be caught up and ascertained if it approximates one pint; a few ounces retained will do no harm. Vomiting, as a rule, ceases entirely after this.

It seems scarcely necessary to say here that in all cases of toxic gastritis, whatever the cause, lavage is the safest remedy to evacuate the stomach and to introduce the emollients and antidotes.

Hutchison, of the London Hospital, in his lectures on Diseases of Children, speaking of acute vomiting of children, says, "You will find, also, a great help in these cases *from washing out the stomach.* You will find it of the greatest use in all cases, acute or chronic, whether in breast-fed or bottle-fed infants, where vomiting is a prominent symptom."

He further states that, "the method is so simple, it is so safe, that you need have no hesitation in employing it." He also says, "You will not find drugs of much assistance in acute vomiting." In his lecture on Diarrhea, he says, "If there is vomiting, begin your treatment by washing out the stomach and the colon; that is to say, begin your treatment by washing out at both ends."

CHRONIC GASTRITIS.

Hemmeter says, "When it is no longer possible to remove the causes that lead to a chronic gastritis, we may yet be able to remove those that maintain or aggravate the malady. These are accumulation of mucus and the mechanical as well as chemical irritation of the stagnating contents, particularly when atony and hypertrophic stenosis exist. To accomplish this, emetics are impracticable, because they

rarely effect a thorough cleansing, and may increase the inflammation by the convulsive contractions they excite and by their direct irritation. Purgatives are even more deleterious, for several reasons: first, they also increase gastric irritation; second, they cannot be used habitually; and, thirdly, they hurry decomposing masses into the intestines, thereby precipitating an involvement of this tract and the dangers of intestinal putrefaction and auto-intoxication. Lavage is the only correct procedure in chronic gastritis whenever increase of mucus, absence of HCl, decomposition, and a protracted stomach digestion are evident. The mucus often adheres very tightly to the gastric walls, since it only appears as a rule, towards the close of the washing. Its solution and evacuation is facilitated by the addition of two tablespoonfuls of sodium bicarbonate or biborate to a quart of warm water, allowing the water to run in under high pressure and directing the patient to change his position during the lavage. The frequency of the lavage depends upon the state of the stomach. There may be cases that do not require it oftener than once in two or three days; others require it twice in twenty-four hours; usually, once a day is sufficient. The time of washing should be so selected that the exhausted stomach may enjoy the longest possible rest."

MOTOR INSUFFICIENCY.

As a rule, we will be able to get along without lavage in the first stage of motor insufficiency, but in the second stage, when the food remains in persistently overtime, this method is almost indispensable, as it is not only a palliative measure of great value, but in cases of atonic dilatation due to muscular weakness, and not dependent upon mechanical obstruction, it may prove an important factor in affecting a cure of this condition.

GASTRIC DILATATION.

In cases of dilatation due to atony washing out the stomach is of great service, though we do not see such striking and immediate results in this form as in cases due to mechanical obstruction. In the latter the stomach should be emptied and thoroughly washed, either with warm water or with an antiseptic solution. We accomplish in this way three important things: we remove the weight, which helps to distend the organ; we remove the mucus and the stagnating and the fermenting material which irritates and inflames the stomach and impedes digestion; and we cleanse the inner surface of the organ by the application of water and medicinal substances.

Osler cites a case under his observation in which this practice was followed daily for three years with great benefit. He further states that the reduction in the size of the stomach is often remarkable, the vomiting ceases, the food is taken readily, and in many cases the general nutrition improves rapidly.

We might say then that in dilatation with fermentation the best stomachic is lavage.

SUMMARY.

To sum up in brief, lavage is indicated:

a. Where the exit of the chyme from the stomach is hindered by a mechanical obstruction, giving rise to decomposition.

b. The second main indication is where foreign or irritating collections are mixed with the gastric contents, which sooner or later interfere with digestion. These collections may consist of abnormally augmented gastric juice, of gastric, pharyngeal, and esophageal mucus, and bile.

Case 1.—Miss A. W., age 32, occupation seamstress, residence Lynchburg, Va. In good health until three years ago, when began having nervous indigestion, which has grown continually worse. Gets along fairly well at times but has spells of very severe dyspepsia accompanied by distressing nausea, vomiting and pain.

When seen on July 1, 1909, she was suffering from extreme nausea with persistent vomiting which was uncontrollable. Removed to hospital July 3rd; still unable to retain nourishment or medicine. Had not been able to secure specimen of vomitus, but relatives gave history of patient vomiting dark material "Like coffee grounds." She vomited at frequent intervals and expectorated a quantity of white frothy mucus.

Microscopical examination of vomitus July 4th showed blood corpuscles and hæmin crystals. Lavage was performed and a large quantity of bile and mucus washed out. The vomiting became less frequent and lavage was again resorted to the following day; this time the patient took the tube with difficulty and the attempts were followed with distress and great prostration. A violent attack of retching brought up about two ounces of fresh blood. No further attempt to wash the stomach was made, but happily the nausea passed and after a few days of rectal feeding she was able to take nourishment by the mouth. A test meal obtained about thirty days later showed a slight hyperacidity.

She was practically well for twelve months when she had an attack of nausea and vomiting brought on by overindulgence in raw fruits and other imprudence in diet, which nothing would stop until the tube was again resorted to. Passing a small calibre tube with the utmost caution the stomach was washed with a solution of bicarbonate of soda, and last with a solution of bismuth subnitrate. A great quantity of thick tenacious mucus came up in perfect sheets. The vomiting ceased and she continues well when on a moderate diet.

Case 2.—Mrs. C. D. L., age 35, occupation housekeeper. Suffered constantly with pain in epigastrium, nausea at times, and persistent and severe frontal headache. Test meal showed hyperacidity. Patient was given dietetic and alkaline treatment, and lavage was performed daily, patient soon learning to use the tube herself, and was rewarded by a rapid and permanent improvement in her condition.

Case 3.—Mrs. E. G., age 37, occupation housekeeper. This patient was seen in the service of Dr. J. J. Lloyd. She had attempted abortion by passing foreign substance into the uterus and had infected herself, a double pyosalpingitis resulting. There was marked toxemia and she had been vomiting persistently for 48 hours before going on the table. Immediately after operation (laparotomy) while she was still under the anaesthetic lavage was performed with a warm alkaline solution. She only vomited once after reacting, a small amount of mucus and suffered no subsequent nausea. She had been anesthetized twice previous to this, once with ether and again with chloroform. From the ether she was nauseated to such a distressing degree that she begged never to have it again. It was considered best to disregard this wish as she was not in a safe condition for chloroform anesthesia in this instance.

1016½ *Church Street.*

OUR POISONOUS SERPENTS AND TREATMENT OF THEIR BITES, WITH REPORT OF A FATAL CASE OF RATTLESNAKE BITE.*

By WILLIAM F. DRIVER, M. D., New Market, Va.

Having been an eye-witness to a fatal case of snake-bite, I have been prompted to present this paper by the apparent doubt on the part of many laymen and some physicians in regard to the poisonous nature of these reptiles. It is not my purpose to offer anything original on the subject, but I shall endeavor to give, in a condensed form, some of the facts concerning serpents and the treatment of their bites.

The number of known species of snakes has been estimated at fifteen to eighteen hundred, distributed between the 70th parallel north latitude and the 40th parallel latitude in the Southern hemisphere. The number of species and individuals in a species is small in the temperate zone, but increases as the tropics are approached. In the torrid zone they are abundant, and it is there that the largest and most specialized kinds are found. Within this range of distribution, snakes show a great amount of differentiation in regard to their mode of life and general organization. Poisonous as well as innocuous snakes are represented in this category, and while the majority are harmless, enough of the poisonous varieties are found in most places to cause the inhabitants to dread the approach of all members of this great family.

All snakes are carnivorous, and as a rule take living prey only. A few feed occasionally on eggs. Many swallow their victims alive; others first kill by smothering between the coils of the body, or by biting. The effect of a bite by a poisonous snake upon a small animal is almost instantaneous, the victim becoming weak and unable to escape. It is to this variety that I wish to call your attention, and, on account of a limited amount of time, I shall consider only those found in the United States.

CLASSIFICATION OF POISONOUS SNAKES.

Twenty-one species of poisonous snakes are found in this country, and, with the exception of two species of the Elaps family, (the Harlequin snake and the Sonoran coral snake, the latter practically unknown) all others belong to the group of Pit Vipers family, Crotalidae. Nineteen species of vipers, representing three genera, are included in this list, divided as follows: Those having tail without rattle ending in a point, belong to the Genus Ancistrodon, furnishing two members, the moccasin and the copperhead. Those having tail with rattle and the top of head covered by regular shields belong to the Genus Sistrurus and include four members. The Genus Crotalus furnishes thirteen species and includes those with tails provided with rattle and the top of head covered by numerous scales.

Description of the Elaps Family.—The Harlequin snake which will be considered as a representative of the Genus Elaps, inhabits the Southern States. Members of this family have small cylindrical heads, rather heavy bodies with short tails, and are characterized by bright

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colors of red, black and yellow, forming rings. They are retiring in their habits, living mostly underground, and possessed of a very amiable temperament. When provoked beyond endurance, it will assume the offensive, and the bite is as venomous as that of the viper of equal size, and even more so. It is provided with permanently erect fangs, one on each side of the upper jaw, directed backward at an angle of 45 degrees with the latter. The local lesion resulting from the bite is so insignificant as to cause very little alarm, but the poison is quickly diffused throughout the system, paralyzing the nerve centers, resembling, in this respect, the action of the cobra venom.

Description of Pit Vipers.—The Crotalid family, represented by three genera and nineteen species, will be described as a class, remembering that the moccasin and the copperhead are the only two species of this family without rattles. This family embraces all pit vipers, and includes all poisonous snakes of this country except the Elaps family just described. Pit vipers, as the name suggests, are characterized by a depression or pit over the lip on each side of the head between the eye and the nostril. The head is triangular, with massive jaws, short maxillae occupying a vertical position, capable of rotation on a transverse axis, and armed with a single long tooth which is perforated. The pupil is oval instead of round, the neck is slender, the body is thick in proportion to its length, and most have clubbed instead of slender tails.

The color of this group varies with the species, from mottled grey to yellow or chocolate brown, or even to almost black, usually covered by darker spots or bands. The size varies also from about two feet to five feet or even more. Pit vipers, as a class, are rather sluggish in their movements, being most active and most dangerous in the warmest weather.

HABITAT.

All rattlesnakes are American. They inhabit localities to which the sun has free access, preferring as a rule, the more elevated and stony districts and prairies. The copperhead and the moccasin have about the same range of distribution, but the moccasin prefers to stay near some water course, and feeds chiefly on aquatic animals. Both are much feared and cause accidents more frequently than rattlesnakes, being more aggressive and striking the intruder without previously warning him of their presence. The quantity of available venom is less, however, than in the case of the rattlesnake, consequently their bite is less dangerous. Viperine snakes are viviparous and exhibit attachment to their young. It is said that the mother on the appearance of danger, opens her mouth and receives her young into her stomach, ejecting them uninjured when the danger is past.

THE POISON FANG.

The poison fang resembles a tooth in structure. It is very slender, about one-third to one-half-inch in length, sharp, curved, and traversed by a canal from the base to a point near the distal extremity. Each snake is provided with two fangs fastened securely to the lower end of the maxillary bones, one on each side of the anterior portion of the mouth. When quiescent these fangs are retracted until they lie horizontally along the upper jaw with the points directed backward. The maxillae are capable of rotation on a transverse axis and are pushed forward, erecting the fang when in the act of striking. Should the fang become destroyed a new one soon forms from one of the rudimentary accessory fangs with which all poisonous snakes are supplied.

THE VENOM GLAND.

The venom gland is found in its fullest development in the pit vipers, and is located on each side of the head below and behind the eye. Its shape is not unlike a flattened almond narrowing into a duct, which carries the poison into the opening at the base of the fang just in front of its attachment to the maxillary bones.

The poison apparatus has been aptly compared to a hypodermic bulb syringe. The hollow fang represents the needle, the bulb corresponds to the poison gland, and the muscles of the hand which compress the bulb, perform the function of the anterior temporal muscle of the snake.

THE VENOM.

The poisonous substance is a yellowish or almost colorless, transparent, sticky fluid with-

out any appreciable odor or taste, easily soluble in water, but insoluble in alcohol or ether. It becomes frothy on shaking and decomposes rapidly when exposed to air. Excluded from air or preserved in pure alcohol or glycerine, it retains its properties for a considerable time. Heat impairs the venom, but its poisonous qualities are not altogether destroyed, even by boiling, unless continued for a long time. Microscopic examinations show it to be composed of epithelial cells and other impurities, and certain albuminoid bodies resembling micro-organisms, but they do not respond to the tests for bacteria. Physiological tests have shown three deadly constituents in snake venoms, namely, the neurotoxins, hemorrhagins and fibrin ferments. The neurotoxins are the most important constituents of colubrine poison, while the hemorrhagins constitute the chief toxic element of the viperine venom. The fibrin ferments are present in both the colubrine and viperine venoms. The venoms of the pit vipers of this country contain chiefly hemorrhagins with secondary amounts of neurotoxins and fibrin ferments.

THE RATTLE.

The rattle is a complicated and highly specialized organ, developed from the simple conical scale or epidermal spine, which in the majority of snakes forms the termination of the general integument of the tail. It is supported by the last caudal vertebrae, from six to eight in number, and consists of a number of horny, dry, cup-shaped joints, arranged so that each loosely grasps the preceding joint in such a way that they strike together when shaken and make a peculiar noise. A new joint is formed at each shedding of the skin, and, as rattlesnakes shed their skins more than once a year, the number of rattles does not indicate the age of the snake, as is usually supposed.

DANGER OF THE BITE.

The degree of danger arising from snake bite depends, in the first place, on the quantity of venom injected. A large, vigorous snake which has not bitten for sometime, is more to be feared than one of small size, or one which has discharged its poison in previous bites, as it requires some hours for the poison to replace itself when once exhausted. In the second place, it depends upon the strength of the individual bitten. A strong, healthy man is more able to resist the poison than a child or very old person. In the third place, it depends upon the position and depth of the bite. The bite may be inflicted through the clothing and result in nothing more than a superficial scratch, or it may penetrate tissues having few blood vessels and be almost harmless, or the fangs may sink deep into vascular tissue or penetrate a vein and produce almost immediate fatal results.

CAUSE OF DEATH.

Different observers fail to agree on the cause of death from snake bite. Some claim death is due to paralysis of the respiratory center, paralysis of the heart, hemorrhage into the medulla, or possibly the inability of the profoundly altered red corpuscles to perform their function, while others believe it to be a powerful nerve poison which paralyzes the vasomotor center and, in large doses, the respiratory center as well. In the case which came under my observation death was due to respiratory paralysis.

SYMPTOMS.

When a poisonous snake strikes its victim, very little pain is at first experienced, but in a short time the tissues surrounding the wound become infiltrated, swollen and ecchymotic and the pain becomes severe. The posion soon exerts its influence on the general system, producing nervous, circulatory, respiratory and digestive disturbances. The nervous disturbance consists of a primary excitation of short duration followed by drowsiness. The intellectual faculties are not impaired, but the general sensibility, as well as the voluntary and reflex movements are rapidly affected. The circulatory disturbances consist of a marked lowering of arterial tension, due to vascular dilation chiefly of the abdominal viscera.

There is a marked acceleration of the heart's action and feebleness of the pulse. The blood itself loses its power of coagulation, and the corpuscles become crenated, disintegrate and run together. The capillaries lose their elasticity, and, being unable to withstand the pressure, the blood is forced out into the tissues, causing ecchymosis if it occurs just beneath

the skin, and death if it finds its way into a vital center. The respiratory movements are labored, the sufferer presenting marked evidences of air hunger. Faintness, cold sweats, nausea and vomiting appear along with thirst, and a profound depression, which in fatal cases, continues until death.

TREATMENT.

When called upon to treat a case of snake bite, one's first thought should be to prevent the poison from being absorbed, and so avoid the constitutional effects. To accomplish this, the patient must be seen early and heroic efforts made to prevent the absorption of the poisonous fluid, as it requires a very short time for the venom to find its way into the blood and through it to every part of the body. First, cut off the circulation, if one of the limbs is bitten, by applying a tight ligature on the proximal side of the wound, which will prevent the absorption for a short while. This ligature cannot remain in place long, as it would cause death to that part from which the circulation has been excluded; so get rid of the poison. Cut into the puncture until the blood flows freely, and withdraw the poison by cupping or sucking the wound. The poison drawn into one's mouth will do no harm unless there is an abrasion of the mucous membrane. Now inject a chemical antidote into and around the wound. A number have been recommended, of which chromic acid solution 1-100 is probably best. Potassium permanganate, chloride of gold, chloride of iron, iodine and bromine have also been recommended. Should you fail to have the proper antidote, cauterize the wound with silver nitrate or the thermocautery. The constitutional effects must be met by stimulants, and of the various drugs recommended, strychnine enjoys the best reputation. To be effective, it must be given in doses sufficient to counteract the depressing effects of the poison.

Digitalis and strophanthus are useful to sustain the heart. Alcohol in small doses frequently repeated is also useful, but care should be taken not to push this too far, as you would then add the depressing effects of the alcohol to that of the poison and defeat the purpose for which it is given. The various antivenenes seem to be highly specific for the venoms from which they have been prepared, but no antivenene is specific for all poisons. For instance, cobra antivenene would be useless in the bite of the rattlesnake and *vice versa*. Seven different antivenenes have been produced, and each intended for its own specific poison. For good results it must be used promptly and in sufficient dose to neutralize the excess of venom. If the proper antivenene is available, it should always be given a trial.

Case.—Mary B., a delicate white girl of twelve years, accidently stepped upon a large rattlesnake about five o'clock on the evening of July 9, 1907, which bit her twice at a point about two inches above her left ankle, posteriorly. On my arrival, one and a half hours after the accident, I found the patient very much excited, and seemed to feel the weight of impending danger. Her eyes were terribly congested, the heart action accelerated, but pulse still perceptible at wrist, and the breathing labored. She was bathed with cold perspiration, was very weak and drowsy. She vomited several times, but this ceased when contents of stomach had been ejected. The depression of the heart increased in spite of treatment, and the respirations became more rapid and shallower as the end approached. The mind remained clear until death: the injured limb was terribly swollen to the groin and of a mottled color of purple and green, the greatest discoloration following the large veins. From the time of my arrival at 6:40 P. M., till 11 P. M., the patient complained of considerable pain at times, but at the latter hour she fell into a light sleep from which she awoke every few minutes. At 1:30 A. M. her breathing became suddenly very irregular, a deadly pallor rapidly covered her face, and a few gasps for breath ended the struggle. Death was due to respiratory failure, the heart continuing to beat for several minutes after all efforts at breathing had ceased. The remedies used before my arrival were onion poultices over the bites, which were applied early by the mother.

At my suggestion, when summoned by phone, about 45 minutes after the child had been bitten, the father applied a tight bandage above the wound and gave her some whiskey. On my arrival, the limb was incised deeply through the wounds and allowed to bleed free-

ly, after which it was bathed with hot bichloride of mercury solution and ammonia and then injected with a 5 per cent. solution of potassium per manganate in and around the bites and at short intervals throughout the limb, using more around the seat of injury. She was given 1-60 grain of strychnine, hypodermically, every hour for three doses. I then waited two hours and gave 1-100 grain more and repeated it in another hour. Gave two ounces of whiskey in divided doses, and milk at intervals to sustain the strength. At eleven o'clock the patient seemed to be resting easier, and was put to bed, surrounded by hot water bottles, and the bandage removed, there was no reaction from the terrible depression. The treatment seemed to be of no benefit, as the poison had had time to be carried to every part of the body before a bandage was applied to retard its absorption, or medical aid could reach her.

There are several conditions which, in my belief, hastened the end in this sad case:

First, the child, only twelve years old and delicate, could not resist the poison as well as a healthy adult.

Second, the snake being a large one and biting twice, almost insured the deposit of all its venom.

Third, the skin being bare, the poison was deposited deeply into the tissue.

Fourth, the accident occurred in midsummer, the season of the snake's greatest virulence, and the poison had had time to be absorbed before medical advice or aid could reach her.

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CORNEAL ULCERATION AND ITS TREATMENT.*

By HUNTER H. McGUIRE, M. D., Winchester, Va.
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When, a few days ago, I accepted the kind invitation of your president to read a paper before this society, it was with some difficulty that I selected a subject which I felt would be of interest and of practical importance to those engaged in the general practice of medicine.

The proper recognition and treatment of ulceration of the cornea is of such vital importance to the welfare of the patient and to the reputation of the doctor that I feel it is not necessary to offer an apology for bringing the subject to your attention.

I shall not attempt to go, exhaustively, into the infinite variety of corneal ulcers as are described in the text books, but shall limit my remarks principally to the commoner forms of ulceration and to the treatment, which, in my experience, has proved most successful.

In the consideration of the subject it is well to remember at the outset a few important points in the histological structure of the cornea. The cornea is entirely devoid of blood vessels, its anterior epithelial layer is a continuation of the epithelium of the conjunctiva, its posterior endothelial layer is continuous with the endothelial cells of the iris and also forms part of the lining of the anterior chamber.

In view of this histological arrangement, it will be clearly understood how inflammatory processes in the conjunctiva, and particularly those accompanied by purulent secretion, extend by continuity to the cornea and cause inflammation and ulceration of its structure. It is likewise evident that keratitis, both ulcerative and non-ulcerative, frequently causes secondary inflammations in the iris and at times iridocyclitis.

It is usually customary for scientific writers to divide ulcerations of the cornea into simple and infected ulcers. The reason for this classification I have never been able to clearly comprehend, for no matter how simple an ulcer may be or how benign in its course, it is distinctly an infection and should be treated as such. The infection may originate in a number of ways, and among the most important causes of ulceration may be mentioned traumatism, purulent conjunctivitis, blennorrhea of the lachrymal sac, a lowered state of the general system such as occurs after typhoid and the exanthematous fevers, auto-infection from the alimentary canal, and disturbances in the nerve supply of the cornea. The mode of action of these various causes is essentially the

*Read at a meeting of the Shenandoah Valley Medical Society at Harrisonburg, Va., February 15, 1911.

same. They simply pave the way for a successful bacterial invasion of the corneal tissue.

The symptoms of corneal ulcer vary in their intensity depending largely upon the extent and character of the ulceration. Pain is usually present and is often very severe, being referred not only to the eye but to the brow, temple, and head. Lachrymation, blepharospasm and photophobia or dread of light are the other subjective symptoms present in a greater or less degree. An examination will reveal a circumscribed opacity of the cornea, conjunctival injection more marked in the neighborhood of the ulcer, frequently an edematous condition of the lids, and in the more unfavorable cases, a collection of pus in the lower part of the anterior chamber, technically known as hypopyon. Upon close inspection with oblique illumination the circumscribed opacity will show a loss of corneal substance surrounded by an infiltrated area. If the ulcer is in the progressive stage, its edges will be ragged and somewhat undermined and its floor and sides covered with a purulent exudate. If, however, the reparative process has already begun it will be more or less transparent, its edges will be round and smooth, and newly formed vessels will, in many instances, be found running to its margin from the neighboring conjunctiva. So much for the symptoms that are found to exist in all corneal ulcerations and, which, as I have said before, are present in a greater or less degree. The special forms of ulceration, with their peculiar characteristics, I will not attempt to describe in a paper of this character.

In the treatment of corneal ulcers we should remember that we have an infection to deal with and that constitutional as well as local measures are necessary. By means of constitutional remedies we are able to strengthen the combative power of the cornea and at the same time to rid the system of the bacteria and their toxins which are responsible for the local infection. A brisk calomel purge should be given as soon as the diagnosis is established in order to eliminate any poisonous products from the alimentary canal. This should be followed by liberal doses of quinine which can, with advantage, be combined with iron and strychnia. This treatment should be kept up throughout the whole course of the disease and should not be discontinued until the reparative process is well established.

For the treatment of the ulcer itself and the accompanying inflammatory conditions numerous local measures have been suggested, but I shall confine myself principally to those with which I have had practical experience and which have proven most useful. In the ordinary benign ulcers, which are accompanied by little inflammatory reaction, the treatment is exceedingly simple and cicatrization occurs in a short period. A weak solution of atropine combined with boric acid, together with the daily application of yellow oxide of mercury ointment and hot compresses freely applied will usually suffice to complete a cure.

On the other hand, when you have an ulcer that is foul, which shows a tendency to extend laterally or to penetrate deeply into the corneal substance and is accompanied by violent inflammatory reaction, prompt measures must be instituted at once. Unless the progress of an ulcer of this character is quickly checked, the subsequent opacity may materially interfere with useful vision or by extension into the deeper structures may result in panophthalmitis and total destruction of the eyeball.

When I have a virulent infection to deal with, my usual practice is at once to put the eye under the influence of a strong solution of atropine (grs. IV to one ounce). This, in a short period, puts the eye in a state of physiological rest and, at the same time, prevents any tendency to iritis and relieves pain. If the pain is not controlled by atropine alone, I either combine with it a 5 per cent. solution of dionin or use the two separately. The latter preparation is not only the most valuable ocular analgesic we possess, but in addition furthers the process of repair and the absorption of inflammatory products, by stimulation of the lymph currents of the eye. In passing I wish to emphasize the importance of carefully watching the effects of atropine when used in elderly subjects. It occasionally has a tendency to produce glaucomatous symptoms in this class of cases and should these develop, it should be immediately discontinued and eserine or pilocarpine used to reduce the tension. I recently treated a case of ulcer in a woman of 50 years of age in which the atropine caused an acute glaucoma, and despite the per-

sistent use of myotics, was finally forced to do an iridectomy to relieve the intraocular pressure.

Holocain, one of the newer local anesthetics, has proven particularly valuable in all forms of corneal ulceration. In addition to its anesthetic properties, it has an antiseptic action and can be advantageously combined with boric acid for irrigating the ulcer. The constant use of cocaine in corneal ulceration cannot be too strongly condemned. Its well known destructive action on the corneal epithelium renders the corneal structure less resistant to the action of pathological bacteria, and as a result infection takes place more readily and infectious processes extend more rapidly.

When, in spite of frequent irrigations with antiseptic solutions and the use of atropine and dionin the ulcer continues to extend or threatens to perforate the cornea, it becomes necessary to make direct applications to the infected area. For this purpose I have been in the habit of employing either pure carbolic acid or the actual cautery. The acid should, of course, be very carefully applied, and in most instances, preceded by a cautious curettage of the ulcer. To facilitate the application, the eye should be thoroughly cocainized and then, by means of a finely pointed wooden toothpick, about the tip of which fibres of absorbent cotton have been wound, the acid is applied by a gentle rubbing movement. After allowing the acid to remain in contact with the ulcer for a few moments, the lids being in the meanwhile held apart, the conjunctival sac is thoroughly flushed with either salt solution or saturated boric acid solution. The application may be repeated in twenty-four hours if conditions have not improved. The employment of carbolic acid in this manner will reduce to a minimum the cases in which it is necessary to use the actual cautery.

If, however, the application of the acid will not arrest the progress of the ulceration, one must not hesitate to use the actual cautery, though skilled hands and a steady nerve are absolutely essential for the proper performance of this delicate operation. The galvanocautery with a small platinum tip is the one best adapted for this purpose, though if not available, the point of a knitting needle brought to a white heat in an alcohol flame makes a very satisfactory substitute.

Numerous substitutes have been suggested and are being extensively employed in place of carbolic acid and the actual cautery. Among these are tinct. iodine, nitric acid, iodized phenol, formalin and sublimate solutions in varying strengths. I have, at various times, used these applications, and while in some mild cases they have yielded excellent results, I have not been impressed with their efficiency in virulent infections.

In closing this paper I want to speak briefly of one measure, which, in my hands has given brilliant results in virulent types of ulcer, and especially those associated with hypopyon or pus in the anterior chamber. I refer to subconjunctival injections of saline solution. The method of making these injections is exceedingly simple and practically painless. The conjunctiva should be anesthetized with either holocain or cocaine, the point of the sterile hypodermic needle inserted near the margin of the cornea well into the subconjunctival tissue and the solution slowly inserted. The quantity of the solution to be injected varies and is influenced by the virulence of the infection. I do not hesitate in certain cases to inject from a half to a syringe full, and I have frequently ballooned the conjunctiva to such an extent that it overlapped the cornea several millimeters throughout its whole circumference. The reaction following these injections is insignificant and, as a rule, very little pain or irritation is complained of. Darier, of Paris, who first suggested these injections as a means of combating infection, used strong solutions of mercuric chloride, and these, in most instances, were followed by violent inflammatory reaction. In recent years physiological salt solution has almost entirely supplanted the sublimate, and the results from its use are substantially as good. Under the use of these injections, I have seen the most obstinate forms of ulceration, which have resisted all other therapeutic measures, clear up and go on to repair, and I have also seen collections of pus in the anterior chamber, which seem to threaten the very integrity of the eyeball, disappear as if by magic.

227 West Water Street.

RELATION OF ALCOHOLISM AND DRUG ADDICTIONS TO PREVENTIVE MEDICINE.*

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In a study of this kind the direct causes and results of spirit and drug addictions must be made prominent, and from this, one can determine some practical possibilities of preventive medicine.

There is no topic more vital and strikingly realistic in the field of medicine than this. It is not a matter of opinion or speculative theory founded on the teachings of the past, but it is one of facts and their meaning—a pure question of scientific study.

The injuries, disabilities and diseases following, and associated with the use of alcohol and drugs, have become so prominent that only an exact inquiry and study of them can determine the possible remedies and preventive measures.

A grouping of some of the principal facts concerning the relations of spirit and drug addictions may be divided into several topics to give their significance greater prominence.

STATISTICS OF RESULTS OF DRINKING.

Under this head I shall group the conclusions of eminent authorities, giving both the highest and lowest estimates concerning the influence of alcohol in the various maladies and degenerations of the present time.

It was estimated that there were 4,000,000 paupers in this country in 1907, and alcohol was found to be a very active cause in from 50 to 70 per cent. of all these cases.

Of the idiots and epileptics registered at the same time, various studies have proven that from 40 to 70 per cent. were directly traceable to alcoholism in the patients or their ancestors. Of the more than 200,000 insane in the United States in 1908, various authors have concluded that from 20 to 50 per cent. could be traced to the use of spirits. The difficulty of securing accurate histories has resulted in wide differences of opinion. Some authors conclude that not more than 10 per cent., others that fully 60 per cent., are due to this cause.

In 1908, 170,000 persons were serving sentences for crime in the United States. Of this number from 60 to 80 per cent. gave a history of the use of alcohol as a prominent factor in their criminal conduct. Last year about 400,000 persons were arrested in this country for drunkenness and petty crimes associated with the use of spirits.

Many good authorities assert with great positiveness that at least half a million persons become insane, paupers and criminals every year as the direct and indirect result of the use of spirits. Studies of the mortality and the statistics of hospitals, insurance companies and other sources show that alcohol may be considered an active cause in at least 10 per cent. of all deaths of persons over 20 years of age.

Another very startling conclusion has indicated that at least 50 per cent. of all railroad accidents, disasters on steamers and automobiles and other fatal casualties are due to the mistakes and failures of persons under the influence of spirits and drugs.

These conclusions show in a general way a very close relation between the use of alcohol and the great evils which preventive medicine is destined to overcome.

The economic relations and the terrible losses from this one source are simply appalling. The loss of human life, human efficiency and the misery and sorrows which follow are not to be described by words and figures. This is confirmed by every day observation. For example: A gate keeper at a railroad crossing after having taken a glass of spirits, became confused and permitted a wagon load of persons to cross in front of a passing train and be crushed. A railroad engineer using spirits failed to see the danger signal and a terrible accident, with loss of life followed. Homicides, conflagrations and innumerable tragedies are constantly traced to the insane acts of intoxicated persons.

Several wars in comparatively modern times have grown out of the acts of intoxicated men. The efficiency of individuals and human conduct and the stability of communities are all destroyed both directly and indirectly by the same causes.

It is the failure to recognize this great fact and the most prominent causes, that has

* Read before the forty-first annual session of the Medical Society of Virginia, at Norfolk, October 25-28, 1910.

brought into prominence hospitals, prisons and almshouses for the care and control of armies of disabled men and women from this source.

The toleration by the community of these economic losses and burdens, which are so clearly traceable to causes that are preventable, is one of the most startling stupidities of the intelligence of to-day. It is estimated that over $500,000,000 are spent yearly in the drink traffic, and that both the direct and indirect result of this expenditure is disease, disability, mortality and economic loss. No one has yet pointed out any benefit or help to humanity in the evolutionary progress from this expenditure.

HYGIENIC RELATIONS.

The relation of alcohol and drug taking to general hygiene is very intimate and apparent. Every day observation shows that the use of alcohol is always followed by pronounced unhygienic conditions of living and conduct. Spirit drinkers, both moderate and excessive, neglect the ordinary hygienic and ethical relations to surroundings, and fail to recognize the conditions essential to health. The delusion that alcohol is a tonic and stimulant to the body, and gives some power which was absent before, destroys the ordinary precaution, and conception of dangers from the surroundings and exposures.

Such persons become irregular in their habits of eating and sleeping and have a lowered sense of duty to themselves and others. They soon have sense perversions with delusions of strength and superior will power to control the situation. Hence they neglect the ordinary precautions of hygiene.

This is very evident in the faulty appearance, faulty conduct, faulty reasoning and general neglect to recognize the proper hygienic relations of their surroundings and work. The inebriate from the highest circle down to the most degenerate, is a center of unhygienic conditions of thought, conduct and living. This fact is demonstrated in the slums of the large cities and in the homes of the wealthy where great irregularities of living and the absence of common-sense rules of life are tolerated.

SCIENTIFIC RELATIONS.

There is a scientific relation between this great problem and preventive medicine which is not well known to the profession, but is evidently destined to become a great new field for medical study and practice.

Alcoholism, inebriety and narcomania, are the terms used to describe the effects of the moderate and the excessive use of spirits, which, when studied scientifically, are found to be simply neuroses and psychopathic diseases.

A comparison of histories of cases of alcoholism and drug taking reveals distinct ranges of causes which occur with great uniformity, and go on in a regular progression. This uniform movement indicates the presence of laws of dissolution, and diseases which go through all the stages of origin, development, decline and extinction.

Thus one of the great facts in the study of the causes indicates that from fifty to sixty per cent. of the parents of all confirmed inebriates are defective, insane, drunken, epileptic and are literally degenerates. In some cases the children inherit from the parents a distinct craving for spirits; in all cases a low vitality and unstable mental organization with feeble endurance and a tendency to exhaustion from the slightest over-exertion.

A defective ancestry is always followed by children more or less abnormal, and likely to fall victims to all sorts of nervous diseases, and other maladies which would be overcome by a more hardy constitution.

Quite a large class of inebriates are traceable to injuries both physical and psychical, also to diseases from malnutrition, exhaustion, nervous excitement, irregularities of work and so on.

Alcohol is used as a tonic for these conditions and its narcotic action is so grateful that it is seldom abandoned. A certain number of persons begin to use spirits from contagion, from surroundings, faulty education and ignorance. Thus every detailed study brings out a range of causes as distinct and pronounced as germ diseases.

In addition to this there are many persons who from inheritance and other unknown conditions are distinctly susceptible to the narotic action of alcohol, and to them it opens a new world of relief and comfort. Whatever has been the previous condition, the direct effect of alcohol is toxic, disturbing the nutrition, deranging the circulation and destroying the

functional and organic activities of the body.

Curiously enough, alcohol of all drugs acts first on the higher brain centers of the nervous system, producing exhaustion and fatigue, then covers up these conditions, giving a sense of well being that calls for its repetition.

Any use of alcohol will create conditions and favoring soils for its growth and development, and for a great variety of neuroses and psychoses which go on until death. A study of the symptomatology indicates the same uniformity of degenerations, beginning with the highest ethical sense of the relations of life and the surroundings and going down to the coarser and more apparent organic activities.

The toxic properties of alcohol produce distinct changes in cell and tissue, and while not always recognized, they are readily seen by comparative studies of both mental and physical symptoms. The scientific relation to preventive medicine is simply that of a distinct disease, curable in a large sense and preventable to a degree beyond anything at present recognized.

RELATION TO PREVENTIVE MEDICINE.

This relation has been recognized in a crude unscientific way by the law. The assumption that the use of alcohol is merely a habit and moral lapse has created a vast system of legal efforts to restrain the victim, and force him to abstain by treating him as a criminal, administering punishment, suffering and pain, with the view of rousing a higher mentality that will overcome his weakness, and bring about restoration.

The great moral movements of the churches, of societies and political parties, have sought through the pledge, prayer and personal appeals to make restoration practicable, and prevent the use of alcohol as a beverage.

The recognition of disease in these cases has started an army of quacks with specifics and pretentions to accomplish the same purpose. A small number of inebriate hospitals and scientific workers have taken up this subject from the disease side and have sought to educate the public to recognize the causes and the conditions which culminate in inebriety and drug taking, and from this point determine preventive and curative sources.

Already they have pointed out many of the real facts which are prominent as factors in the use of alcohol and drugs. While a great mass of unknown conditions are yet to be studied, they indicate great possibilities of prevention. It is very evident that there are certain physical conditions and states of surroundings that distinctly provoke and encourage the use of alcohol. There are several faulty nutritional states followed by perversions and derangement that make alcohol a most grateful remedy and delusive drug. There are certain faulty educational methods with mental and physical training that increase the susceptibility to turn to narcotic drugs for relief. There are certain mental contagions from delusive theories and contact with drinking men that encourage the growth of this disease. There are certain distinct inherited tendencies that favor the use of narcotics. There are certain distinct diseases followed by exhaustion which find relief from this source.

This list might be extended to great length in which the preventable causes become more and more apparent. The use of alcohol is frequently a symptom of toxic conditions of faulty growth and development, and the use of alcohol invariably produces these conditions; and where it is a symptom at first, the intensification of the degenerations which follow soon makes the chronic incurable inebriate of the street.

Preventive medicine opens up a tremendous field of causes which can be removed. A large number of cases are successfully treated by changing the environment and building up the brain and physical condition.

Another class are restored by removing the mental and physical conditions, and still another class are cured by training, educational methods, teaching them how to live physically and mentally. The curative measures possible, while including drugs, can be applied to a very wide field of causes which cover nearly all the phenomena of growth and development. Preventive medicine here is the same as elsewhere. A recognition of the exact causes which provoke and create a desire for spirits and narcotics is to be recognized, and their removal will be followed by a subsidence of the disease.

In all this there are positive physical facts and conditions that do not depend on theories

or individual opinions. Preventive medicine is simply a recognition of the causes and their removal. Alcohol both directly and indirectly is related to these great evils, and its recognition as a definite factor will indicate the methods of prevention and curability.

The possibility of stamping out this cause is becoming more and more of a reality every day.

CONCLUSIONS.

The more the facts are studied the greater the danger appears, and the necessity for preventive and curative measures. There are two facts which are beyond all denial or controversy:

1. That alcohol is a narcotic and depressant; that alcohol in its action on the body is toxic and degenerative, that it is not a tonic, food or stimulant, and has no value to lengthen life, increase vitality and give strength and power, but on the contrary its physiological action is exactly the opposite.

2. That the use of alcohol is both a symptom and a cause of neurosis and a distinct disease, and that its sale as a beverage is an active cause of not only specific, but general diseases. The victims are irresponsible, and the delusion that its sale as a beverage can be controlled by law will be recognized. It is this delusion that is the actual soil for the cultivation and growth of armies of paupers, defectives and insane which are cultivated and grown in our midst with the same certainty that plants are grown, and diseases are spread by water and insect.

It is ignorance of the facts of the causes of these great evils that encourages and tolerates their growth.

Gladstone once said: "When England shall recognize the preventable losses which follow from the expenditure of 100,000,000 pounds in the drink traffic, of which the poor man pays the largest part, we shall have a new race with new vigor, greater longevity and diminished disease."

In this country there is beginning to be recognized the possibility of preventive and curative measures for the great losses which follow from the drink traffic. Already from a financial point of view, there are efforts being made to find practical measures for relief. In the medical and scientific world it is a great question of recognizing disease and applying measures of relief, increasing the efficiency of human life and contributing to the great evolutionary struggle upwards.

There will be differences of opinion because the facts are not all known, but there can be no question that the use of alcohol as a beverage is the cause of suffering and disease, equal to, if not greater, than any other factor, and our highest efforts in curative and preventive medicine should be along this line.

OPIUM POISONING—AN UNUSUAL ANTIDOTE.

By P. M. STROTHER, M. D., Scottsville, Va.

The following case of opium poisoning, and its simultaneous antidoting—inadvertent though the latter was—is unique, so far as literature at my command allows me to judge. In this fact lies its chief interest, though it also suggests an "emergency antidote," to be found in many households.

Case.—Mrs. E. R., age 30, white, VI-para, fairly well nourished, but of a "neurasthenic diathesis" (?), dependent upon an ovarian cyst, with associated endometritis and cystitis.

On November 5th, 1910, at 11.30 A. M., patient took a two ounce mixture of tincture of opium and tincture of arnica, equal parts. At 4 P. M., four and a half hours later, her husband found her in a deep sleep, and seeing the empty bottle, immediately aroused her and administered warm mustard water until vomiting was induced.

I reached her at 4.30 P. M. Found her awake and rational, though very drowsy. Pulse 136 and small; respiration, 26; pupils pin-head in size, and extremities cool, but not unduly so, as she had been placed between open windows, and the weather was chilly. Complained only of nausea and vomited soon after my arrival, the third time, but none of the vomitus betrayed by its color and odor more than a trace of either laudanum or arnica. Strychnia, 1-30 grain, and atropine 1-150, was given hypodermically, and a cup of hot black coffee by mouth, the latter being soon vomited and repeated.

During ensuing three hours pulse gradually fell to 120, with better volume, and respiration to 20, when I repeated hypodermic of strych-

nia 1-30 grain, omitting the atropine. After another three hours pulse was 96 and of fair volume, and respiration 17. Gave strychnia 1-40 grain hypodermically and at end of six hours more, found pulse 68 (normal for this patient), with normal respiration, but complaining of weakness and hunger, drowsiness having practically passed off. Strychnia 1-30 grain, by mouth.

During all this time patient, while sleepy, was easily engaged and held in conversation, and was perfectly rational at all times. Voided three or four ounces of urine during the night, with considerable effort.

Was the tannin content of the arnica sufficient to antidote the morphine in the laudanum chemically, or did the depressant effect of the arnica on the vagi antidote the opium physiologically? Probably both factors contributed to the fortunate outcome in this case.

The rapid, weak pulse at no time pointed to the third stage of opium poisoning, as cerebration was too active for that condition, and then too, there had been no second stage. These reasons justified, to my mind, the adoption of an expectant and symptomatic plan of treatment, rather than the usual routine treatment of opium poisoning.

Department Of Analyses, Selections, Etc.

CONDUCTED BY
MARK W. PEYSER, M. D., RICHMOND, VA.
Secretary Richmond Academy of Medicine and Surgery, etc.

The Present Status of "606."

Inasmuch as dioxydiamidoarsenobenzol, "606" or Salvarsan, is now available to the profession generally, it seems opportune to offer a brief summary of the status of this remedy to date.

In accord with experiences following the introduction of other new remedies, it was to be expected that much of the enthusiasm with which "606" was greeted would be lessened after a more extended trial. This has indeed proven to be the case. It has, for instance, been definitely established that the "Sterilisatio Magna," in Ehrlich's sense, *i. e.*, the permanent destruction of the spirochetes in the body after a single injection of "606," does not occur in the majority of instances. Recurrences of the disease after one injection are being reported with greater and greater frequency the longer the cases are observed, and it has been shown that these recurrences are more likely to occur in early syphilis than in the later stages. Some observers report as high as 25 per cent. recurrences. Despite this, it is fairly unanimously conceded that "606" far surpasses any other agent at our command in ridding the body quickly of syphilitic lesions, thereby establishing the greatness of Ehrlich's discovery beyond peradventure. For these reasons, it has been held by many observers that it is necessary to repeat the injections at certain intervals in order to bring about a permanent cure. Ehrlich, himself, admits this shortcoming and advises re-injection, the first three to eight days later and again after several weeks until a persistently negative Wasserman reaction is obtained.

The impression is also gaining ground that the immediate effects are as good after small doses as after the larger dose recommended by Ehrlich. Some observers, in fact, recommend that the best method of treatment consists in the injection of small doses frequently. It will be gathered from these remarks that opinion in regard to the proper method of administering the drug has not crystallized.

The claims of the early sponsors that such parasyphilitic diseases as tabes, general paralysis, etc., will be cured by "606" have proven unfounded. These maladies are apparently as little influenced by "606" as by mercury.

Improvements in the technic of administration are, perhaps, among the most important of the later contributions to the subject. The original method of injecting a neutral suspension is fast being discarded owing to the excessive pain, occasional intense general reaction and the tendency to cause sloughing at the site of the injection. Instead, the method of Neisser, who suspends the drug in an oil (preferably Iodipin), is slowly being adopted. This method is not attended by the disadvantages we have mentioned. Whether the injection should be made intravenously, as Ehrlich now recommends, or subcutaneously, has not been settled.

Whether mercury will be ultimately abandoned in the treatment of syphilis is still a mooted question. The majority of observers reveal a notable unwillingness to abandon the older specific, and hold the view that the ideal method of treating syphilis will probably consist in a proper co-ordination in the administration of both "606" and mercury. At all events, it is a striking fact that in the most recent reports, more permanent results have been obtained in cases which have undergone mercurial therapy after the immediate lesion had been cured by "606."—(*Editorial, American Journ. of Surgery*, February, 1911).

Conjunctivitis Vernalis.

C. R. Dufour, Washington, says that spring or vernal catarrh of the eyes is a chronic disease which often lasts for years. The changes in the conjunctivae and tarsi are very characteristic. Papillae appear on the former, varying in size and often assuming a bluish-white color. Brownish, uneven nodules of gelatinous appearance arise from the limbus: and often there is thickening at the junction of the conjunctivae and cornea, a circumcorneal hypertrophy, which, in many cases, extends into the cornea and sclera. The nodules persist for years thus differing from eczematous conjunctivitis. Persons affected with the disease have no trouble in fall and winter, but at the approach of spring the eyes become inflamed and itch: and light produces such pain as to require exclusion. The warmer the weather the greater the trouble. A cool spell during the summer months produces much amelioration of the symptoms, which abate and finally disappear as autumn comes on. The male sex, particularly in boyhood, is predisposed to the disease.

Though the prognosis is bad as to duration, it is good as to the outcome. There is no cure or prophylactic. Mild measures should always be used, such as a solution of boric acid with or without a few drops of solution of suprarenalin chloride. In cases of considerable photophobia, bathing the eyes in hot and cold water alternately will often give relief. Protection from light is to be afforded by colored glasses. Those who wear glasses to correct vision should have them amber colored, this shade being very soothing. Should there be any indication of scrofula or other hereditary taint or lack of nutrition, it must be combated by the proper remedies. Good, nourishing diet is very important. The use of the eyes for study or any close work should be prohibited. The patient is to be kept indoors in windy weather, for even if the eyes be protected by glasses enough dust will be blown into them to cause much irritation and, thereby, augment the trouble. Patience and watchful care are the two important factors.—(*Author's abstract*).

Surgical and other Aphorisms.

Robert H. M. Dawbarn, New York, gives a collection of suggestions on surgical matters of value to the surgeon. Of these the following may be noted. In preparing for an operation the author advises the surgeon to make a mental review of every procedure and to place out everything that will be needed in order that it may be packed by the nurse. Calomel and jalap mixed do not cause griping and cause an excellent purgation, with stimulated liver action. Incisions should be made clean in one cut, not in several united. Ill-smelling pus is not always the worst. That caused by the tetanus bacillus is odorless. *Bacillus proteus* and *Bacillus coli communis* are most likely to cause a bad odor. One should use the terms "unspun silk" rather than "silkworm gut." This material consists of the abdominal contents of the worm, which would have been spun. Linen thread is the strongest suture and easily sterilized without injury. The operator should wear rubber gloves for his own protection as well as for that of his patient. Large rubber tubing for compressing limbs may be obtained at the garage from cast-off inner tire tubes. In sterilizing the skin do not use a brush to roughen it. A handful of toilet paper is much better. Shoulder tenderness may be from the large bursa beneath the deltoid muscle. Fever should not exist after the fourth day following a surgical operation. The earliest test for malignant bone disease may be made with a sewing needle. If softening from malignancy exists the needle may be pushed into the area. The author describes five things called felons—septic cellulitis, septic periostitis, arthritis of the last phalangeal joint, aseptic involvement of the root of the

nail, septic thecitis of the sheath of the flexor profundus tendon. To safeguard an amputation have the stump elevated, uncovered by the bedclothes and a "Spanish windlass" prepared from stout gauze ready to be twisted in case of hemorrhage. In setting a Colles' fracture or reducing a shoulder dislocation use anesthesia.—(*Medical Record*, March 4, 1911).

A Method of Treating the Prostatic Utricle.

J. T. Geraghty, Baltimore, gives the following technic: A straight, number 24 (French) urethroscopic tube with an external light is passed into the prostatic urethra beyond the verumontanum. Introduction of the straight tube to this point is practically always readily performed without the production of any trauma. The introduction of the tube beyond this point in occasional cases is accomplished with some difficulty, owing to the rather acute ascent of the posterior part of the prostatic urethra to the vesical orifice. When the tube, after passing some distance through the prostatic urethra, encounters resistance, one is practically always beyond the verumontanum. On removing the obturator, one readily recognizes from the Y-shape of the urethral orifice that the end of the tube lies toward the vesical end of the verumontanum. The tube is then gradually withdrawn until the readily recognized verumontanum bobs into view. The tube is further withdrawn until the anterior face of the verumontanum projects into the open portion of the tube. The mucous membrane is carefully and gently sponged with cotton swabs. The above position of the tube causes a tilting forward of the verumontanum so that the utricular orifice, which lies rather on the upper surface, comes directly facing the open end of the tube. The tip of the syringe can now be readily introduced into the orifice of the utricle, the contents of the utricle aspirated for miscroscopic examination, and injection readily made into its cavity. Not infrequently, owing to the edematous condition of the mucous membrane, the utricular orifice is not visible, but with gentle probing with the tip of the syringe in the middle line towards the upper surface one will rarely have difficulty in accomplishing catheterization.

Silver nitrate has been the drug employed almost entirely, and it seems to give the most satisfactory results. While one can employ for external applications to the verumontanum silver nitrate in very concentrated solution, or the actual caustic, without the production as a rule, of severe reactions, these strong injections are not well tolerated when given into the utricle. In patients with numerous neuralgic pains, the result of utricular disease, it is well to begin with injections of 1 per cent. and gradually increase the strength to 2 or 3 per cent. The employment of too strong a solution may cause intense pain lasting over several days. The injection should be given slowly, as forcible distension may be quite painful.

Speaking of dribbling of the urine without explainable cause, the author states that he has seen four cases unimproved by other measures, entirely relieved by applications to the verumontanum and utricle injections. In two of the cases, only slight improvement followed treatment of the verumontanum, but they responded rapidly and promptly to treatment of the utricle. The explanation does not seem clear. Infection of the utricle not infrequently is the cause of persistent recurring posterior urethritis. One case of persistent posterior urethritis, due to colon bacillus, which had resisted during several years all efforts to dislodge the infection, on careful urethroscopy of the posterior urethra showed pus oozing from the prostatic utricle. Injections of 1 to 2 per cent. silver nitrate into the utricle were very soon followed by a complete disappearance of the infection. Another patient with persistent posterior gonorrheal urethritis, who had been under treatment many months, was finally cured by the same procedure. Infection in the prostatic utricle is probably the cause of many cases resistant to ordinary forms of treatment. In some cases, particularly when the orifice of the utricle is small, it is well to snip out a wedge-shaped piece of the utricular roof, thus affording better drainage.—(*Journal American Medical Association*, March 11, 1911).

Shutting off Part of the Circulation as a Therapeutic Measure.

Tornai (*Berliner klinischer Wochenschrift*) applied Klapp's suggestion to shut off part of the circulation as an approved method of giving anesthetics, but Tornai uses it without re-

gard to any drug. He found that by applying a constricting band to arrest the venous circulation in the limbs, the heart had less than half the former area to serve and could work with so much less blood that its task was proportionately lightened and it was thus given a chance to recuperate. He has applied this as a therapeutic measure in a number of cases, shutting off the circulation in the limbs twenty or thirty minutes every morning for a week or so. The effect was striking, he reports, in cases of fatigue and dilatation from stasis of the right heart, the right ventricle being too weak to empty itself completely during the systole. By holding back part of the blood, the right ventricle was able to accomplish its task better, with less expenditure of energy, and was given a chance for rapid recuperation. The most striking benefit was obtained with mitral affections, but benefit was also realized with degeneration of the myocardium and with beer heart, the tachycardia, arrhythmia and insufficient systole subsiding. After release from the constriction, the pulse becomes slower and more regular. In the severer cases in which heart tonics fail, little can be expected from the constriction method, but he has obtained good results in a few exceptional cases even of this kind. The relief from the measure is so great that often the patients await its application with impatience. Diuresis is generally promoted, and there was profuse sweating in some cases as the constricting bands were removed; this must be done very slowly and gradually. He uses rubber tubing for the constricting band as for the Momburg technic. He attempted to enhance the action of drugs by this means, finding that a small amount had an immeasurably greater effect when the limbs were excluded from the circulation; but in order to accomplish this, the arterial circulation in the limbs had to be arrested likewise, and the constriction kept up for an hour so so; the patients objected to this, so he has abandoned the method.—(*Idem*).

Book Notices.

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. Critic and Guide Co. New York. 1910. 12mo. 132 pages. Cloth, $1.50.

In dealing with this subject of prevention of sexual diseases, the author presents certain views which are worthy of consideration on the part of those who are striving to reach the best solution of this perplexing question. He discusses the reality—the prevalence—of the venereal peril, and mentions many of the woeful results among the innocent due to its spread, this being attributable partly to ignorance. Prostitution, he believes, cannot be abolished as long as human nature stands unchanged; and, as a main source for dissemination of contagion among the unwary, he advocates control—a humanitarian supervision—of this unfortunate class. Other chapters relate to the government's and to the physician's duty toward prevention of sexual diseases, to the individual's and to the physician's personal prophylaxis, etc.

While knowledge of sexual hygiene is, up to a certain point, important to everyone, some of the views as to the necessity for publicity, as expressed more especially in the introduction, are extreme, and detract from the value of the book, and a discussion of sexual questions before *mixed* audiences, be the hearers old or young, is against public policy, and will tend to a greater relaxation of moral standards.

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; Professor of Therapeutics and Physiology, Reliance Medical College. Clinic Publishing Co., Chicago, 1910. Cloth, 12mo. 115 pages. Price $1.00.

This compend on active principles, based largely on the author's personal experience, presents in a condensed, but useful form, the materia medica and therapeutics of some of the most valuable of alkaloidal remedies. The study of this book—dealing with a class of remedies which has been much neglected—will not only be interesting, but should convince the average practitioner that the subject offers much in the way of definite dosage and therapeutic value, as well as a convenient method of drug administration.

The author, in stating the dosage of a drug, constantly refers to the "standard granule," which we presume refers to the drug as put out by a Chicago firm.

Editorial.

Editorial Staff of Virginia Medical Semi-Monthly.

In the issue of this journal for December 9, 1910, we stated editorially that certain changes were contemplated, even before the death of the late editor, Dr. Landon B. Edwards, though we were not at that time in position to make definite announcement as to the matters under consideration. Our plans having been matured, we will—beginning with the next issue, April 7, 1911, the first number of the new volume—announce an Editorial Staff for the *Semi-Monthly*, composed of representative physicians from various sections of Virginia, as well as a representative from the District of Columbia and one from North Carolina.

While this journal enjoys a liberal patronage from all of the Southern States, and a general circulation throughout the Union—with copies going to many foreign countries—it would be impracticable and not conducive of the best results to make the Staff too large or to have its members very widely scattered. It has, therefore, been our aim to associate with us men of recognized ability and special fitness from the sections in which our activities are proportionately greatest.

With the exception of the Managing Editor, who will continue to exercise exclusive control over all financial and other business matters, the Editorial Staff will have no business connections whatever with the Semi-Monthly.

Our next issue will contain a further statement of our plans and purposes, looking to the enlarged usefulness of the journal.

A New Kidney Test.

Any test which will give information concerning the functional activity of diseased kidneys and which is free from danger to the patient will certainly meet a definite need both of the genito-urinary surgeon and of the physician. Phenosulphonephthalein, according to Rowntree and Geraghty,* can be used for such a test: and, moreover, has the additional advantage that the test with it is easy to carry out, and the results are obtained quickly, are definite and are easy to interpret. This drug was first prepared by Dr. Ira Remsen, and its properties have been studied by Abel and Rowntree, and by Rowntree and Geraghty.

After discussing the value and limitations of other functional kidney tests, such as the methylene blue test, cryoscopy, etc., the writers claim for phenosulphonephthalein that after administration, either subcutaneously or by the mouth, it produces no ill effects; that even large doses retained a long time are nontoxic, and that the drug is completely eliminated by the kidneys, its chemical nature being unchanged. The drug begins to appear in the urine very soon after its administration; the excretion is complete in a short time, necessitating observation over not more than one or two hours; the drug is readily recognized by the color which it imparts to the urine; by means of this color accurate quantitative estimation of the amount eliminated can be made with facility and simplicity. The size of the dose required in performing a test is so small that there can be no extra strain placed upon the kidneys in performing the test.

In practice, it is important to observe exactly the length of time intervening between the injection of the drug subcutaneously and its first appearance in the urine; also, it is important to observe accurately how much is eliminated during the first and second hours.

Technique of the Test.—The patient is instructed to drink about 400 ccm. of water twenty minutes or half an hour before the drug is administered; a soft rubber catheter is then passed and the bladder drained and irrigated, if indicated, and the catheter retained. The time is now carefully noted, and 1 ccm. of the sterile, stock, aqueous solution, so made up that one ccm. contains 6 mgm. of phenosulphonephthalein, is injected subcutaneously with a carefully graduated syringe. The urine is allowed to trickle from the catheter into a test tube containing 1 drop of a 25

* An Experimental and Clinical Study of the Functional Activity of the Kidneys by Means of Phenosulphonephthalein, by Drs. L. G. Rowntree and J. T. Geraghty. *Journal of Pharmacology and Experimental Therapeutics*, Vol. 1, No. 6, July, 1910.

per cent. solution of sodium hydroxide. As soon as the first pink tinge is observed the time is noted as the first appearance of the drug. The catheter is now corked and at the end of one hour the cork is removed and urine allowed to flow into some receptacle. Again the catheter is corked, and at the end of the second hour the cork is removed and the urine allowed to drain into a second receptacle. If the patient has no urinary obstruction and does not retain the catheter with comfort, it may be removed when the drug appears and the patient instructed to void at the end of the first hour and again at the end of the second hour, saving each specimen of urine separately. The urine now has an orange color. Each specimen is measured and the specific gravity taken. A sufficient amount of a 25 per cent. solution of sodium hydroxide is added to each specimen to bring out the deep red color, and distilled water is added to each specimen to make one liter. A small amount of each of these specimens is taken to compare with the standard solution. The standard solution is so made that 1 ccm. of the aqueous solution contains 3 mgm. of the drug; or 1-2 ccm. of the solution used for injection may be used. This is made up to one liter by adding a sufficient quantity of distilled water and made alkaline by adding one or two drops of 25 per cent. sodium hydroxide solution.

The comparison of the urine with the standard is made by means of the Dubosc colorimeter and that part of the drug recovered in the urine can be estimated in percentage of the dose given.

The results of experiments in normal cases are uniform. The drug appears in the urine in 5 to 10 minutes, and 40 to 60 per cent. is excreted in the first hour; 20 to 25 per cent. in the second hour. In unilateral kidney lesion, when nephrectomy is indicated, this test, in conjunction with cystoscopy and catheterization of the ureters, is found to be of very great value.

As a result of numerous experiments, the writers give the following conclusions:

1. Functional tests considered in conjunction with a careful clinical study of the patient undoubtedly furnish information of decided value regarding the functional capacity of the kidney.

2. The phenosulphonephthalein test as used by us has many advantages over all other functional tests so far proposed.

3. Phenosuphonephthalein itself is better adapted for use as a functional test than any other drug previously employed for the same purpose on account of its early appearance in the urine and the rapidity and completeness of elimination by the kidney.

4. The method of quantitative estimation of the amount of drug excreted is simple and exceedingly accurate.

5. The permeability of the kidney for this drug is decreased i both chronic parenchymatous and chronic interstitial nephritis, the decrease being most marked in the interstitial variety.

6. The test has proven of great practical value in revealing the true renal condition in cases with prostatic obstruction. It is here of more value than the urinary output, total solids, urea, or total nitrogen, and enables the surgeon to select a time for operation when the kidneys are in good functional condition.

7. The improvement in cases of prostatic obstruction following the institution of preliminary treatment is strikingly demonstrated by this test and the time most suitable for operation is indicated.

8. In unilateral and bilateral kidney diseases the absolute amount of work done by each kidney, as well as the relative proportion, can be determined when the urines are obtained separately.

W. H. Goodwin, M. D.

Annual Report of Virginia Health Department.

The second annual report of the State Health Commissioner records the progress of the work of the Health Department during last year, and contains a vast deal of information of interest alike to the profession and to the laity.

Of the various bureau reports, which are supplemental to the report of the Commissioner, perhaps the most interesting is that of the Bureau of Rural Sanitation. This is the bureau which has been charged with the investigation of epidemic and endemic typhoid fever as well as of hookworm disease, and its report contains detailed statements of the many in-

vestigations undertaken by the Department. Chief among these was the rapid, but conclusive study of a typhoid epidemic at Bristol, and a much more extended discussion of the one at Lexington.

Both of these reports show, among other things, the progress which has been made during recent years in the investigation of typhoid epidemics. The process of ascertaining the source of infection, while one of elimination in some respects, required long continued and minute study of sewerage and water-supply problems. The results and conclusions are cautiously stated, but seem fully substantiated by the evidence adduced.

Another interesting feature of the general report is that relating to the publicity and educational work of the Department. Professor Winslow, in the *Journal of the American Public Health Association*, recently referred to the publications of the Department as "specially notable for effective presentation and soundness in subject matter;" and the report in question explains how this has been done. As municipal health departments are multiplying very rapidly in the State, and in view of the interest manifested by the general public, a study of the report of this Bureau will be valuable.

The progress of the Catawba Sanatorium, the details of sanitary inspection, the outlook for improved water supplies, the work of the laboratory, and the statement as to the more liberal distribution of diphtheria antitoxin, etc., are other interesting features.

American Medical Association.

The Los Angeles meeting of the Association, to be held June 27-30, 1911, promises, in many ways, to be one of the most pleasant and interesting in the history of the Association. Apart from the interest in the meeting, the pleasures and the educational benefits to be derived from a trip across the continent, with the entertainments planned at the end of the journey, are experiences which are seldom enjoyed. Several tours are being arranged, so as to give the doctors and members of their families who accompany them, the privilege of going by one route and returning by another, with stop-over privileges at many points of interest, the duration of the tickets of varying lengths of time up to three months or more. Some form of entertainment is being prepared for every day during the meeting, and an invitation has been extended all members and those of their families accompanying them, to spend the 30th at Pasadena, where much will be done for the entertainment of the guests. Pasadena will expend $10,000 on this occasion, while Los Angeles is trying to raise $40,000 for the days spent there. Indications are that there will be an unusually large attendance.

The Virginia Health Department

Reports that the railroad authorities have ordered the erection of a station at Catawba Road Crossing for the accommodation of patients and visitors to Catawba Sanatorium, and an extra train will be run Tuesdays and Fridays to meet the regular Norfolk and Western trains, and carry parties to Catawba without delay.

Smallpox has made its appearance in eleven counties of the State, and is causing the local boards of health to order large supplies of vaccine virus from the Department. Only general vaccination which should be made compulsory will save the worry and expense accruing to the State from this disease.

A new feature of the Department is to send a representative on the Farmers' Trains, to tell the farmers how to guard against disease, while representatives from the Agricultural Department are instructing them as to their crops. Much interest has been manifested in these talks and it is hoped the health educational work may result in great good.

The Church Hill Medical Society, Richmond, Va.,

In January celebrated its tenth anniversary with an informal supper, after which the following officers were elected for the year: President, Dr. Wm. H. Parker; vice-presidents, Drs. J. Shelton Horsley, B. A. Hord; secretary-treasurer, Dr. Ramon D. Garcin; executive committee, Drs. C. M. Miller, C. W. Massie, W. S. Beazley, Wm. H. Parker, R. D. Garcin. It was decided to meet the second Wednesdays of each month, at the Railroad Y. M. C. A., and at each meeting to have a

surgical and a medical paper, with practical case reports as often as possible. Members of the medical profession are invited to attend the meetings and participate in the discussions.

At the March meeting, interesting papers were read by Drs. J. Shelton Horsley and Mark W. Peyser, both of which will appear in early issues of this journal. At the April meeting, papers will be presented by Drs. Stuart McGuire and C. M. Miller.

A Conference on Children

Will be held in Richmond, Va., during May under the auspices of the State Conference on Charities and Corrections to discuss the child problem in Virginia, and to devise better methods for their care. Experts in this line from all parts of the country are expected to be in attendance, and will not only address the Conference, but will make suggestions for future work.

This Conference will in no way conflict with the regular annual meeting of the Conference on Charities and Corrections of Virginia, which is to be held in Roanoke next fall.

Health Reports from the Philippine Islands

Demonstrably prove the efficacy of vaccination for smallpox among the natives, since American sanitary authorities have taken the situation in hand. Whereas, a few years ago, deaths from smallpox would number into the thousands, annually, with the employment of permanent vaccinators, and the education of the people as to the need of original vaccination and periodical revaccination, it is believed the disease will, in the near future, be reduced to a negligible minimum.

Appropriate Menu for Doctors.

About two hundred and fifty former internes of Bellevue Hospital recently gathered at a banquet in New York City "For the sake of auld lang syne," and after marching in to dinner to the strains of "Lohengrin's Wedding March," partook of "refreshments from surgical vessels labeled 'Poison,' sandwiches cut a la porous plaster, and ice cream in sterilized bandages. An ambulance bell served as a gavel for the toastmaster. For once, we presume the doctors enjoyed their own medicine.

Dr. E. P. Cuthbert,

Evans City, Pa., whose name appeared in our last issue as one of the successful applicants before The Medical Examining Board of Virginia at its recent meeting, while a graduate from Hahnemann Medical College in 1894, states that he graduated from Kentucky School of Medicine in 1893, and as he received the practical part of his education there, he should hail from the last named institution, rather than as listed.

Pine Camp, Richmond, Va.

The work done by this tuberculosis sanatorium for advanced cases of the disease, has been so satisfactory that the City Council will most probably appropriate $5,000 for the support of the camp. The Tuberculosis Society, under whose care the camp was erected and equipped, is also considering the enlargement of the sanatorium so as to be able to care for the many patients now seeking entrance.

The Alexandria (Va.) Medical Society,

At its last quarterly meeting elected Dr. Wm. M. Smith, Alexandria, president; Drs. S. B. Moore, Alexandria, and T. F. Dodd, Fairfax County, vice-presidents; and Drs. Llewellyn Powell, of Alexandria, and R. J. Yates, of Alexandria County, secretary and treasurer, respectively.

The Southside Piedmont (Va.) Medical Society,

Of which Dr. Sam'l Lile, of Lynchburg, is president, and Dr. Geo. A. Stover, of South Boston, secretary, will hold its next semi-annual meeting at Lynchburg, April 18th. A large attendance is expected, and with the papers promised, this should be one of the best meetings in the history of the Society.

The Southside Virginia Medical Association

Held its first quarterly meeting for 1911 at the Lynnhaven Hotel, Norfolk, March 14, the new president, Dr. J. Bolling Jones, of Petersburg, presiding. A number of papers were read, and lunch was served in the Rathskeller of the Hotel between the morning and afternoon sessions.

Walter M. Brunet,

Of Petersburg, Va., a member of the graduating class at the University College of Medicine, Richmond, after a competitive examination, has been appointed an interne at Gouverneur Hospital, New York, for a term of two years, beginning early in the summer.

Dr. Owen Copp,

Who, for the past twelve years, has been executive officer of the Massachusetts State Board of Insanity, has resigned to accept charge of the Pennsylvania Hospital for Insane.

Roanoke Academy of Medicine.

At a recent meeting of the Academy, Dr. A. A. Cannaday was elected president, and Dr. Thos. G. Burke, secretary.

Dr. George P. Hamner

Has been appointed City Coroner of Lynchburg, Va., vice Dr. John J. Lloyd, Jr., who was recently made assistant resident physician at Catawba Sanatorium.

Dr. Frank H. Hancock, Norfolk,

Has been appointed Quarantine Officer of Elizabeth River District, to succeed Dr. Powhatan S. Schenk, Health Commissioner of Norfolk.

Obituary Record.

Dr. George E. Williams,

Died after a lingering illness, at Pearisburg, Va., February 21st, in his thirty-sixth year. He was a son of James W. Williams of Richmond, Va. Graduating from the Medical College of Virginia, he practised his profession in Richmond for several years until his health commenced to fail, at which time he moved to Southwest Virginia. His wife and one child survive him.

Dr. Alfred L. Wolfe

Died at his home, Roanoke, Va., March 1st. He was born in Rockingham County, Va., December 26, 1853. After finishing his academic education at the public schools, he took up the study of his profession at the College of Physicians and Surgeons, Baltimore, graduating in 1875. He was a member of the Medical Society of Virginia and of local medical societies, and examiner for several insurance companies. He was for several years an assistant surgeon on the Norfolk and Western Railway, until he moved to Roanoke. Dr. Wolfe is survived by his widow, who was Miss Elizabeth Milnes.

Resolutions on the Death of Dr. Wolfe.

The Roanoke Academy of Medicine, at a recent meeting, adopted the following resolutions:

Whereas it has pleased Almighty God, in His infinite wisdom, to take from our midst one of our most talented members, Dr. A. L. Wolfe, be it

Resolved, That the people and the medical profession have lost a talented, loyal friend and counselor.

We, the members of the Roanoke Academy of Medicine, in this way wish to extend our sincere sympathy to his bereaved family and patients.

Resolved, That a copy of these resolutions be spread upon the minutes of the society; sent to his family; to the daily papers, and to the State medical journals.

(Signed) J. C. Boudow,
W. L. Powell,
Alvah Stone.

Dr. Ernest McCue Thrift,

One of the leading physicians of Madison County, Virginia, died at his home, March 6th, after a brief illness from pneumonia. He was born in Madison, August 19th, 1873, and received his academic education at local schools and the Augusta Military Academy. He then took up the study of medicine at the University College of Medicine, Richmond, from which he graduated in 1898. He was a member of the Piedmont Medical Society and of the Medical Society of Virginia. His wife and two children survive him.