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The Canada Lancet

VOL. LI.

TORONTO, JANUARY, 1918

No. 5

EDITORIAL.

THE VALUE OF CHIROPRACTIC.

The following extracts are taken from an address delivered by B. J. Palmer, who is at the head of the Palmer School of Chiropractic, Davenport, Iowa, U.S.A., and which is called the "Chiropractic Fountain Head". The address is copyrighted and bears the date of 1915, and is entitled "The Value of Chiropractic".

On page 2 we find this: "Reaching a quick conclusion, the philosophy, science and art of medicine, if it can be conceded to have any of these attributes through its process of diagnosis, prognosis and prescription, deals entirely with effects, always the effects of diseases, consequently never reaches a cause, never corrects that cause, and since the effect is the product of that cause, what can be medicine's value. In the last analysis, nil again. I might say, what the centuries of medical thought and action produced that is practical? Look over, if you will, the last three thousand years, what have they done that is extremely practical? After all has been said and done, where is there one idea that they are hanging onto that they hung onto fifty years ago? It is one constant kaleidoscopic effect, a moving picture panorama that changes from century to century."

In these words B. J. Palmer sets forth his views on medicine, and what it has accomplished. But just set against the foregoing statement the discovery of the circulation of the blood, the introduction of vaccination against the ravages of smallpox, the wonderful work that has been accomplished on the numerous infecting germs, the researches on the spread of contagious diseases, the treatment of hydrophobia, the use of antitoxin for the cure of diphtheria, the use of inoculation for the prevention of tetanus and typhoid fever, the marvels of modern aseptic sur-

gery by the destruction of infecting germs on instruments, dressings, the hands of the operator, and the skin of the patient, and the rooting out of the *causes*, not effects, of yellow fever, ague, beri-beri, cholera, the plague, the sleeping disease, bilharziasis, etc., etc., and then recall the blatant language of B. J. Palmer.

But there is something even better than the quotation just cited. Here it is, from page 5: "Here we possess to-day, you and I, common, ordinary people, the dust of the road mixed into mud, and made into man—minus all this hard-earned education, minus the European post-graduate courses, minus the years and years of study, and the thousands of dollars spent on them, and minus the concensus of opinions and ideas of century upon centuries—we chiropractors with chiropractic possess the knowledge of all diseases. We possess the key that opens the bars to the insane brain—and what a multitude of conditions insanity comprises. We possess the knowledge of the cause of cancer—the thing that many others are spending millions for; we possess the knowledge of the cause of tuberculosis; we possess the knowledge of the cause of Bright's disease, of diabetes, of rheumatism, and what not. Clear through the entire category of possibilities of names. Just think, here you are, in the little time of twelve months, at an expenditure of \$250, getting the thing that thousands are spending thousands and millions of dollars vainly trying to get, and you are getting it in a nutshell, in little time, with little effort, at little cost, with little labor here, and here, right at this time and now, you and I. Think of it."

Yes, think of it, all ye men of science! For \$250 in money and twelve months of time you can learn about diseases "clear through the entire category of possibilities of names." You poor benighted men of science that work for years in the laboratories, or walk the wards of hospitals year after year, are wasting your time and your money. Make a visit to Davenport, come under the teaching of B. J. Palmer and his associates, and, of course, pay over \$250, just to bind the bargain, and forthwith you will be shown the true road to the discovery of all the causes of diseases. Sell your microscopes and culture ovens as scrap to the junk dealer, dispose of the horses used to produce serum to the nearest carting company; and turn the key in the door of the kennel where the dogs are kept for the treatment of rabies, first turning on carbon monoxide gas. In lieu of this sort of research, learn how to twist the spinal column, and find out how to do the toggle trick, and toggle the recoil. B. J. Palmer will tell you all this for \$250, as per his pamphlet of 1915.

But it is best to let B. J. Palmer state the case. On page 5 we read: "If a man could demonstrate beyond any question of a doubt that he had

an absolute specific that could not fail, what would they give? Why, it would run up into the millions. Yet we have it, you have it, in your adjustment of that backbone. Just a week ago I had a case of syphilis come to me. In this case the throat was one solid mass of sores. One adjustment was given on Monday and on Tuesday the throat was clear, and on the following Sunday the throat was absolutely well, and on Thursday the patient's throat was perfect. A little twelve months' time, a little \$250, and a little thought and effort makes all that possible."

It is well that B. J. Palmer said "a little thought"; for if one would give this subject just a little extra thought he would see that the whole thing had no bottom on which to rest; that it was a thing without head, body or legs. In science this thing called chiropractic is a perfect example of teratology. It is indeed a marvel that by a punch or twist of the spine one can cure a severe syphilitic throat in a few days; and all this without a dose of medicine. Who would not be a chiropractor at the moderate cost of \$250 and a little twelve months, and a little thought. To be able to work greater miracles than that of Moses when he drew water from the rock is surely a thing that anyone would wish, especially when it only costs the three *littles* of time, money and thought. Just think of it! "We chiropractors with chiropractic possess the knowledge of all diseases. We possess the key that opens the bars to the insane brain." With such knowledge one should be able to secure a place among the immortals, be made distinguished fellows of the most learned societies, have the greatest honors that kings and presidents can confer.

On page 6 of this pamphlet we find this: "This afternoon in the clinic a lady who had been paralyzed, a case of complete hemiplegia, hand and arm all doubled up, and the right leg also paralyzed, got up and you saw her lift up that hand, and kick out her leg. What would a physician not give to be able to do that kind of work? The amount of money that he would give would be endless, and yet what does it cost you? \$250, twelve months of time and thought, and a little sincerity."

Look at this amazing statement. Thousands of times have physicians seen patients afflicted with hysterical paralysis get up and walk, those with hysterical blindness see, those with hysterical vomiting cease the habit, etc., etc. Such a statement may be accepted by chiropractors, but it will meet with its true estimate at the hands of the medical profession.

On page 11 we find some most remarkable sayings; but this will suffice: "I am making a broad comparison when I say that chiropractic and God are true sciences. The study of God is theology, theology is the science of God, and I am saying now that chiropractic becomes a study of the science of God in man. If chiropractic is based on knowledge, and knowledge proves itself as ripened wisdom, or wisdom becomes ripened

knowledge, and this foundation is proven to be true in the demonstrable results that we see day after day, week after week, year after year, in locating accurately the specific causes of specific inco-ordinations, and we are able to correct them, then we are doing to the utmost the work of God here among men."

This must be admitted to take first place among all the specimens of literature we have ever seen. We leave it to you to form your own conclusions upon it. On the same page we find the following:

"The science of medicine to-day is no further along, no nearer to reaching the truth of the knowledge of life and the wisdom of saving life than it was three or four thousand years ago."

This is either a deliberate mis-statement, or is the outcome of profound ignorance of the growth and progress of the science of medicine. The marvels it has achieved could not be told in many articles; and yet, in a sentence B. J. Palmer tells us it is "no nearer to reaching the truth of the knowledge of life and the wisdom of saving life than it was three or four thousand years ago."

From page 18 we take this: "Just decipher this little knowledge, this little wisdom, into proper uses, and it is my candid opinion that never before in the history of the ages has anything been advocated or preached which is quite so practical in its application of this knowledge and wisdom coming from the universal source of God, as this work here and now, between you and I, at a little cost of twelve months' time."

At this point we leave B. J. Palmer to live in the castle he has constructed for himself. It certainly surpasses anything read of in the fairy stories of childhood, when we were familiar with the usual introduction "Once upon a time there dwelt a king or a rich prince, etc." Now there dwells in Davenport, Iowa, one who is giving to the world the greatest discovery ever known; and tells his hearers "that when the time comes for you to leave the Palmer School of Chiropractic you will be wiser than when you came."

It is to be hoped that this will be true and that most of the students will have seen the folly of chiropractic. This is the grotesque system of healing that seeks recognition in Ontario.

If one wishes to find a crushing answer to the statements of B. J. Palmer regarding the non-progress of medicine, please read the article on "Principal Causes of Death in the United States for 1916," appearing in another part of this issue.

ALFRED TAYLOR STILL.

The death of Alfred Taylor Still occurred quite recently at Kirksville, Missouri, at the age of 90. He became noted as the founder of

osteopathy. It would be quite erroneous to title him doctor, for in no sense was he a graduate of any medical college.

His father was a minister of the Gospel, and while A. T. Still was a mere boy was sent as a missionary to the Western States, especially Missouri and Kansas. In these locations it was impossible for young Still to obtain any medical education.

In his autobiography A. T. Still tells us that his father was a doctor, but from what college there is no intimation. It is possible that the future founder of osteopathy learned some medical lore from his father.

During the Civil War A. T. Still records his experiences in the army; but they were as the leader of some men, not as a doctor or surgeon. In one place there is the single sentence that he was a surgeon under General Fremont, but when or where is not stated.

About 1874 he began to think that drugs were of no use, and formed his idea of a new system of treatment. He had been digging up Indian bones and studying anatomy after a certain fashion. He came to the most erroneous conclusions that the rule of the artery was absolute and that the body contained a remedy for every disease.

He never had any training in physiology, chemistry, clinical medicine or surgery, and bacteriology was to him wholly unknown. With this sort of mental equipment, he set forth to give the world a new science of diseases and their treatment.

Now the new treatment is only a form of manipulation. It is a combination of massage and motion of the parts of the body. There is absolutely nothing in it that is new, or was new even when he began to practise it. The public might think it new, but not the medical profession. Rubbing, friction, massaging, loosening joints, bone-setting, Swedish movements, etc., were all known prior to the teachings of A. T. Still.

It is true that at times a patient may derive benefit from such treatment. There are cases of stiff joints or congested muscles that judicious rubbing and manipulation may improve, but this is not a new system of therapeutics. On the other hand, we have known of many instances where this sort of treatment has been the means of doing a very great deal of harm.

To discard the protective value of anti-typhoid fever inoculation, the preventive influence of vaccination against smallpox, and the use of anti-tetanic serum in the present war, would mean the loss of the war to the side that so acted. And this is the very sort of teaching of the late A. T. Still and his present-day followers. The whole system of osteopathy is a disgrace to this century.

THE GERMAN USE OF SCIENCE TO SPREAD DISEASE.

The following is quoted from the *Medical Record* of 15th December, 1917. As it bears out what we have often stated, we give it to our readers as confirmation of these assertions:

"Dr. Christmas recently published a work on this subject, to which Professor Letulle has contributed a preface, a notice of the publication appearing in the Bulletin of *Le Progrès Médical* for October 13th. Information was obtained from prisoners exchanged in Switzerland as no longer able to make war. The author is a neutral Danish physician who was asked to carry on the investigation by the French Minister of Foreign Affairs, and his work was done in Switzerland. By a strange coincidence he died suddenly on the day in which his accusing document was presented to the world. He began his undertaking with the conviction that the prevalent beliefs about the ill-treatment of the men were gross exaggerations. Imbued with the traditions of German university life, such conduct had been to him simply inconceivable. He was unable to grasp the idea that German sanitarians, with their *esprit de corps*, could have fled from the typhus infested prison camps. It was even said that they had made no effort to rid the prisoners and their belongings of vermin, and thus prevent the epidemics which occurred in at least three camps. Could they have contrived this spread of disease? They at least made no effort to isolate the Russians who had already suffered from it. The result was thousands of deaths among the prisoners and the flight of German doctors. Some one saw to it that nourishment was not withheld—it was passed in through wickets; but all credit for medical service was due to the French and Russian physician prisoners. The German medical staff eventually realized that the principles of humanity had been violated, and the omission was in part repaired. To-day, in the prison camps, all prisoners are disinfected on admission, and there have been no epidemics of typhus for more than two years. The breakdown in the German sanitary service occurred in January, 1915, and can absolutely not be excused on account of unsettled conditions.

"The other subject for discussion cited in the review is tuberculosis. The prisoners, in a condition which attracted infection, and with numerous infections already established, received no more hygienic ministrations than the first group. There were no cuspidors, no separate laundries, no isolation for the already infected. Many men already in the incipient stages were made to work in the mines and factories. In Letulle's opinion it was only too evident that when peace came thousands on thousands of germ carriers would be sent home to France with the attest that they had been "able to work". If such mass infection was

deliberately planned or fostered, there was no necessity for deliberate inoculation, as has been charged, for the German authorities knew their method was equally efficacious, and less troublesome for them."

Here we have "confirmation strong as proofs from Holy Writ". When the war is over will it ever be possible for the medical profession of the Allied countries to meet in friendly terms the medical men of Germany, who have prostituted the knowledge regarding the spread of disease to commit murder in such wholesale manner. It is the same as if a physician gave his patient a dose of a deadly poison while he was pretending to give some curative drug. That the members of the medical profession of any country could descend so low as to be willing tools for the commitment of murder is almost unthinkable. But here we have it.

It should be many a long day before the doctors of the Ally countries should meet in conference in Germany, and then only when the German doctors have repented in sackcloth and ashes.

THE PREVENTION AND TREATMENT OF ARMY SHOCK.

Shock is one of the most difficult problems the army medical officer has to cope with. This is more especially so in wet and cold weather, which proves so depressing to the wounded and exhausted soldier who may have to lie for some time in the open.

The first essential is to gather in the wounded with as little delay as possible. By this means the duration of exposure to the wet and cold is materially reduced, and the effects of shock mitigated thereby.

Another matter of importance is that of having the ambulances warm. This is accomplished by passing the heat from the engine through the conveying portion of the ambulance. This improvement has now been perfected to a great degree.

Then warm drinks have been found most helpful. These are furnished to the stretcher and ambulance cases. There are stations along the way at which walking cases may have a hot drink.

Special wards and tents have been arranged in connection with the hospitals in which shock cases are treated. In these wards and tents arrangements have been made for supplying heat to each bed, stretcher or couch.

Experience has amply borne out the value of pituitary extract, and as amply shown the lack of value in intra-venous injections of normal saline. It has been suggested that hypertonic saline solutions would be more effective.

Professor Bayliss, who has been especially studying the subject of shock, has advised that 2 per cent. gum arabic be added to the fluid used

for intra-venous injection. This has the effect of raising the viscosity of the blood, and favoring the removal of shock. There is no fear of anaphylaxis with this mixture, as it contains no protein. The essential points are shelter, warmth and comfort should be provided for shock cases as far up to the front is possible. The Germans have made extensive use of concrete shelters close to the firing line.

Another thing that has been discovered is that in shock cases demanding operations on the abdomen an undue amount of blood was not found there. There seems to be a widening of the whole capillary area in the viscera and musculature, with an outpouring of plasma into the tissues. In many cases the small arteries appear to be contracted.

WHAT THE MEDICAL PROFESSION IN BRITAIN HAS DONE.

When the war broke out there were 30,000 doctors in Britain. This number included the old and the young, the well and the ill, those with their faculties, and those who were blind, deaf or lamed. On a recent date there were 10,000 of these in uniform.

Take Leeds as an example. When the war broke out it was decided to organize a hospital of 520 beds. Three of the active surgeons went to the front, but the doctors of the city and surrounding country were called in, and trained for the work, and now the military hospital in Leeds has accommodation for about 7,000 patients.

In bravery the medical men have taken a first place. A bar has been twice won to a Victoria Cross, and both times by doctors.

When the Germans sent over their deadly gas, at once the best physicists were rushed to the scene, and in three days a mask was invented and ordered to be made.

During the South African War there were 57,684 cases of typhoid fever and 8,022 deaths. In this war, which has lasted longer and with five times as many troops in worse conditions of climate, there have been 6,002 cases and 292 deaths.

In Egypt at the beginning of the war a disease known as bilharziasis caused many deaths, and affected one-third of the people; but a commission of medical men unearthed its secret and now it has practically ceased to exist.

In every region where the British soldier has gone the British doctor has gone with him, and has manifested every quality of endurance and courage that has ever distinguished the British soldier.

CANCEL GERMAN PATENTS.

There should be no delay in going into the manufacture of all such chemicals and dyestuffs as this country requires. Never again should

Britain, Canada and the United States allow themselves to be dependent upon Germany for such products. We have the material and the brains and make these two meet and give us the finished product.

There is no good reason why Germany should enter upon the *status quo ante* when the war is over; and find all her rights in the Allied countries the same as in the days of peace. That she planned a brutal war there is no doubt; that she has waged it in a brutal and savage manner there is no doubt, and that she has ill-treated the prisoners of war there is no doubt. All this should have meted out the severest sort of punishment.

Germany's methods of business have been most unscrupulous. She flooded the world with agents to sell her drug products under fancy names, and at high prices under patents. It was not long until drugs intended for prescription order found their way into the hands of the general public. This was the scheme from the beginning of these manufacturers and agents.

The United States has set a good example. That country has cancelled the patents of those who made salvarsan and all kindred preparations, and has authorized firms in the country to produce these drugs at a reasonable price. This is one good step in the right direction. We hope to see the Government of Canada act in a similar manner.

BACTERIOLOGICAL EXAMINATION OF THE BLOOD IN IRRITABLE HEART.

Grace Briscoe and Lyn Dimond (*British Medical Journal*, August 18, 1917) call attention to the fact that several observers have reported finding organisms in the blood of cases of irritable heart. They made two series of observations, in the first of which they also obtained a number of positive cultures. They were subsequently able to determine that most, if not all, of these were due to contamination. A second series of cultures was therefore undertaken with an improved technique, and one which had been shown to eliminate practically all danger from contamination. In this second series, which included ninety-six observations on forty-three cases, all of the cultures remained sterile, except a few which later became contaminated from the air when the flasks were opened. It was concluded that there was no evidence of bacteriemia in cases of irritable heart.—*New York Medical Journal*.

ORIGINAL CONTRIBUTIONS

WOUNDS OF THE KNEE-JOINTS.*

By SIR BERKELEY MOYNIHAN, Leeds, England.

THERE is probably no department of surgery in which greater changes have been wrought since the early days of the war than in that concerned with the treatment of wounds of the knee-joints. When I was first in France in November, 1914, the majority of the cases of wounds of this joint exhibited, by the time that a base hospital was reached, a grave suppurative arthritis; very often the patient was extremely ill, with a high temperature and all the evidences of a severe constitutional infection; and in a large number of cases only the most drastic procedures offered any hope that the limb might at last be saved. Too often, perhaps, we failed to remember that a man had two legs, and only one life, and conservative measures were pushed to excess. In the work of the French army, as I saw it, amputation was in such circumstances often advocated and practised forthwith; and there can be no doubt, I think, that though some limbs were sacrificed which continued care might have saved, many lives were rescued that would otherwise have been jeopardized or lost.

By degrees, however, as our grasp of surgical principles grew firmer, and as transport facilities increased, cases were obtained earlier, a more direct and deliberate attack was made upon the wounds, and results began rapidly to improve. It was quickly realized that all methods of treatment of a well-established purulent arthritis were miserably inefficient, and that here, as elsewhere, every effort must be directed to such a precocious and drastic treatment of the wound as would prevent the development, never long delayed, of an infection. It was felt to be insufficient so to treat a limb as to save it only with a stiff joint; the aims must be both to save the member and to preserve the freedom of movement in the damaged articulation.

For purposes of academic description, the following classes of injury may be recognized:

1. *Cases of clean perforating wound of the knee-joint by rifle bullet.*

There are cases in which a rifle bullet traverses the joint from side to side, often without inflicting any damage, or the most trivial damage, to the bone. In other cases the bullet, or a shrapnel ball, may have entered

* Read before the Clinical Congress of Surgeons of North America, in Chicago, on Oct. 23rd, 1917. Selected from Boston Medical and Surgical Journal, 22nd November, 1917.

the joint and have lodged in the lower end of the femur, or in the upper end of the tibia. The wound or wounds inflicted may be small. They are rapidly sealed up, and present no evidences of inflammatory reaction. The joint may, or may not, fill gradually with fluid during the next few days. If fluid forms and is removed, it is commonly found to be sterile. In such cases conservative methods are fully justified by the results. The joint must be perfectly immobilized, and the patient retained if possible at the clearing station, so as to avoid the disturbances often inseparable from travel. Aspiration of the fluid, and the injection of formalin and glycerine, formerly often practised, do not seem to insure or hasten the recovery.

2. *Cases of penetrating or perforating wounds of the joint with a larger aperture of entry, or of exit, or both, when the projectile is retained in the joint.* All such cases must be submitted to operation. The limb, which should be immobilized at the field ambulance, is kept absolutely at rest until an X-ray examination is made. This is indispensable; under no circumstances may a blind exploration of the joint be made in the hope that the missile, if any, or if many, may be discovered and removed. The surgeon must know beforehand the conditions he will probably meet, and must deal with them purposefully and deftly.

The position and size of the projectile being ascertained, the track of the missile must be determined. The position of the limb as it lies on the splint is, of course, hardly likely to be that which it had when the wound was inflicted.

After the whole limb has been thoroughly prepared in the usual manner, certain definite objects must be pursued. The wounds and the track of the projectile must be excised; missiles must be removed, all foreign bodies, fragments of clothing taken away and such damaged and loosened fragments of bone sacrificed as may appear to be necessary. The technique of wound excision is the same in these injuries as in others; the damaged skin and all the bruised and lacerated track down to and including the synovial membrane are removed, if possible, in one piece. A preliminary sterilization of the track with the actual cautery is an undoubted advantage. How precisely the incision is to be made will depend upon the exact circumstances. A good rule for the surgeon in all his technical responsibilities is that he should see well what he is doing and do well what he sees. These should be endeavors in the knee-joint especially. To make a small incision, and to introduce his finger to "explore" the joint, which may mean to grope blindly and clumsily therein, is not in accord with the needs of cases such as these. A quite adequate exposure is necessary. If this can be obtained by an enlargement of the aperture of entrance, or exit, or of both, nothing more is required;

if it cannot, then a long internal or preferably external incision is made; if these are insufficient then the surgeon must make up his mind to a sacrifice of the ligamentum patellae and the making of the semi-circular flap fashioned in many cases of excision of the knee, and this must be done. By the time the patient is ready to use his limb the ligament will have united firmly and be competent to bear the strain then placed upon it. There can be no doubt, however, judging by the cases I have seen, that the functional result in all returns more slowly and always less perfectly than in those where only the lateral incisions are made. A free and full exposure of all the injured parts being then obtained, the following injunctions may be observed: to remove all dead tissue, to remove all soiled parts, to remove all foreign bodies, clothing, mud, clots, etc.

How strictly is the surgeon to interpret the rule that all projectiles must be removed? Our experience in England shows beyond dispute that (a) if a projectile is embedded in the articular ends of the bones, when the bone has suffered little or no damage beyond that necessarily inflicted by the entrance of the foreign body, it becomes encapsulated and rarely, if ever, gives rise to subsequent trouble, and (b) if a projectile, however small, remains in the knee-joint, it is an abiding source of infection and of suppurative arthritis. The most troublesome and tedious of all the cases seen at home are those in which a foreign body has been left in the point. It is, therefore, a strict and necessary injunction that all projectiles should be removed at the earliest opportunity. All vessels bleeding ever so slightly along the wound are carefully secured. The wound and all parts exposed are gently wiped, and if the surgeon so desires, some form of antiseptic may be used—ether, or Dakin's solution, or saline solution. The wound is then closed by layer after layer of catgut sutures until the skin is reached. For this, silkworm-gut is used.

Is drainage to be used? In the early months of the war drainage tubes were freely, indeed almost universally, employed. Sir Anthony Bowlby, however, has often emphasized their very real disadvantages. Unlike most surgeons, I believe, he had for many years in civil practice forbidden their introduction in all cases under his care. He has now won all opinion round to his view. There can be no longer any doubt that any form of tube introduced into the joint cavity in these early cases is productive of nothing but evil. Tubes damage the synovial membrane by their pressure, and are a potent and abiding avenue of infection. As a binding obligation, with no objections worthy of consideration, it may be asserted that tubes should never be placed within the joint. It is rare to see in the base hospitals in England, a movable knee-

joint when tubes have been used within the cavity. Drainage, however, may be necessary, and is quite adequately secured by placing tubes "down to but not into" the joint and by leaving a gap in the line of the sutured synovial membrane. The delicate tissue of the synovial membrane then suffers no harm, yet if effusion occurs it finds a ready exit and easy escape to the surface. Dressings are then applied and absolute immobility secured for 8 to 10 days by a splint.

There are cases, probably between 10 and 15 per cent. of the total number treated upon these lines, in which an effusion into the knee-joint, larger or smaller in quantity, associated with an elevation of temperature, may occur, generally after the fifth or sixth day.

What is then to be done? This question is to be answered by the bacteriologist and the surgeon working together. An examination of the fluid discharged from the tube, or removed by aspiration of the joint, must be made forthwith. If any organisms but the streptococcus or staphylococcus are found, there is no need as yet for anxiety. In quite a number of the cases, the fluid will prove to be sterile and will leak away by slow degrees through the aperture prudently left in the synovial membrane. Day by day the temperature will fall and the knee assume once again its normal size, and all will at last go well. If, however, the staphylococcus is found, the joint must be watched almost from hour to hour. If fluid is leaking away slowly, and if the temperature tends to fall, and if the patient remains comfortable, then expectant methods may safely be continued. In the great majority of such cases, all danger will subside and the infection will be subdued by the patient's own efforts. Such cases help one to realize the strength of the defensive power that the knee-joint is capable of exercising. When, however, the streptococcus is present, active and timely interference is necessary. The joint must be freely opened by long lateral incisions or by semi-circular incisions dividing the patellar ligament. The synovial membrane must be stitched to the skin, and the Carrel-Dakin method adopted. If the infection is of a still graver or more hostile kind, excision of the joint or even amputation may be imperatively necessary.

There are few types of cases, if indeed there are any, which give such genuine gratification to the surgeon practising in England as those treated in France by methods similar to those described. A very large number have now been received into our base hospitals in which, a month or six weeks after an injury that two or three years ago would have meant permanent disablement of the joint as the best attainable result, all movements of the knee are free and unimpeded and attended by no pain what ever. In no circumstances do we realize with such certainty and

satisfaction the remarkable scientific advances made by our colleagues working with the army in France.

3. *Cases of perforating or penetrating wounds of the joint with intra-articular fracture.* This condition is a degree more serious than that in which the missile has cleanly entered and become firmly embedded in the end of the femur or the tibia. There is here a shivering of the articular ends with many irregular lines of fracture. In the midst of a soft mass of crushed bone, the projectile may be lying. All such cases must be dealt with ruthlessly. There must be adequate exposure by one or other of the incisions before mentioned; all dead, severely damaged, or entirely loose fragments of bone taken away, the curette or the bone forceps being used to get rid of all bone which is beyond hope of recovery. As a rule, the distinction between sound and doomed bone is easily made. The articular cartilage is, however, always dealt with most sparingly. The future integrity of the joint movements depends upon the preservation of every scrap of this structure.

It will often be found that an injury which before free exposure has appeared trivial is seen, when the joint is opened up, to be very extensive and to require careful and long-continued toilet before all parts are cleansed and removed. It may be necessary once or twice to change instruments, gloves, or towels, in the due observance of the strict aseptic ritual always necessary. When all parts are cleaned, the most perfect hemostasis is secured and the wound then closed.

In many cases in England we have used Morison's paste (Bipp) to smear over the rough osseous surfaces which remain or over a bruised or inflamed synovial membrane. I have seen several cases of severe infection of the knee treated by Mr. Morison himself, and have been surprised some weeks later to see what a remarkable degree of functional restoration has been obtained. It is in these severer forms of injury to the knee-joint that we have by degrees been brought to realize that our old timidity towards this joint is quite needless. It is no exaggeration to say that with proper care the knee can protect itself from infection almost as well, if not quite as well, as the peritoneum. Our fear of infections within the joint were due to an ignorance of the methods of treatment of them. Most surgeons dealing even with a mild infection, and probably all surgeons dealing with anything approaching a grave infection, relied upon drains introduced into the cavity of the joint to rid the parts of inflammatory products. We know now that nothing but harm comes from a drainage tube placed into the joint. If drainage is necessary it is secured by tubes down to the synovial membrane, but not within it, by suturing the synovial membrane to the skin, or by adopting, as Mayo Robson suggests, a special posture of the limb.

4. *Cases of injury to the knee-joint, with extensive fracture of the articular ends.* The practice to be followed in such cases will depend upon the position and extent of the injury, the number and localization of the projectiles, and the degree of infection. If there is extensive fracture without loss of tissue, it is probable that an attempt to save the knee will be worth while; that even if ankylosis results, the firmness and strength of the limb will be adequate to most purposes. When, however, there is extensive localized loss, as, for example, when one condyle of the femur is blown completely away, then a formal resection of the knee-joint forthwith is probably the best course. In such a case, even if complete healing takes place, the functional utility of the limb is greatly hindered by these deformities which inevitably follow. As much of the femur must be saved in making the resection as can with safety be left, the upper end of the tibia, if intact, must have only the merest shaving of the articular cartilage excised, that is, enough to allow a bony ankylosis to take place. The amount of the two bones that can be removed without serious disablement is remarkable. I have had one patient whose leg was a trifle over four inches shorter than the other, who walked with vigor and not inelegantly. A part both of the femur and of the tibia had been destroyed by a shell fire.

In cases included in this group where infection has obtained a hold, the method of excision introduced by Colonel Fullerton may be practised. Instead of bringing the opposing ends of the femur and the tibia together, means are taken by extension to keep them apart. A wide gap then is left which may be filled lightly with gauze and the Carrel-Dakin method of treatment adopted. When the wound has reached the stage of "clinical sterilization" the bones may be fitted together and the limb fixed in a splint.

In still more severe types of injury amputation of the thigh is performed without delay. This counsel is especially urgent when the great vessels also are injured, when laceration of the soft parts is extensive, and when infection, especially with the bacillus of gas gangrene, is evident.

CONCLUSIONS.

1. In all cases of wounds of the knee-joint, the limb should be fixed immovably upon a splint at the earliest possible moment, and until circumstances and surroundings permit of a complete operation.

2. At the casualty clearing station, or other operating centre, an X-ray examination is made in all cases. The whole limb is then prepared for operation.

3. The following are the essential features in all operations: excision of the wounds and of the track of the projectile after preliminary

sterilization by the cautery or otherwise; a free exposure of the joint either by enlarging existing incisions or by long internal or external incisions or by the formation of a flap by division of the patellar ligament.

4. All foreign bodies must be removed from the joint. Even the smallest piece of clothing or of metal may be the nidus of a continuing infection.

5. The wounds are closed in layers by catgut sutures. Drainage is secured by leaving a gap in the line of suture of the synovial membrane, or by leaving a tube close "down to but not into" the joint.

6. Drainage tubes are never placed within the joint cavity. They do not drain the joint, they are harmful in their effects upon the delicate synovial membrane, and they are often a channel by means of which infection is conducted to the joint.

7. In cases of severe infection of the joint by staphylococcus, or especially by the streptococcus, the wounds must be reopened, the synovial membrane stitched to the skin, free drainage of the joint secured, and the Carrel-Dakin or other method of progressive sterilization of the wound adopted. In more severe cases, with an infection rapidly gaining ground, excision of the joint may be necessary.

8. In cases of severe comminution of the articular ends with much loss of substance (the whole of one condyle, for example), a resection of the joint is performed forthwith.

9. In severe and extensive wounds with heavy infection, the method of resection with wide, temporary separation of the ends of the bones (Fullerton) should be practised.

10. In cases of very extensive damage, especially with infection, amputation is desirable.

ON ENDOCRINE NEURASTHENIA.*

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THE clinical pictures formerly grouped under the title of neurasthenia are diverse in causation. After excluding by proper psychopathological study hysteria, dementia, precox and cyclothymia, and after eliminating chronic latent infections, such as those of tuberculosis, syphilis, and pyogenic organisms; after dealing with such chronic metabolic disturbances as determine low-grade renal or hepatic insufficiency;

* Selected from Medical Press and Circular, 7th November, 1917.

after exclusion of the assimilative disorders such as occur in intestinal stasis, there remains a considerable group of neurasthenic conditions. Of this remainder the proper study shows a large proportion of disturbances of glands of internal secretion.

1.—THYROID NEURASTHENIA.

The most generally known of these are the conditions due to disordered thyroid activity, although even these are by no means completely understood. When there is a frank exophthalmic goitre with its enormous acceleration of activity and metabolism, explanation is simple; and so in frank myxœdema. But in a case where bodily activity is rather diminished, although there is a tachycardia, hyperhidrosis, with on the whole diminution of sympathetic functions, explanations are not certain, more especially when such a case improves by treatment with such a sympatheticotrophic substance as adrenin. Now the majority of dysthyroidias of the neurasthenic type are of this mixed kind, where, indeed, the vagotonic signs may predominate.

The pathogenesis of this condition is most uncertain at present.

Of hypotheses to account for its hypersecretion there are three classes, in support of each of which facts may be adduced.

That prolonged dread may produce thyroid hyperactivation should be a corollary of the experimental demonstration that acute fright does so. But clinical proof of this is not forthcoming, for there are many individuals chronically afraid in whom there is no hyperthyroidia. If fear then does produce hyperthyroidia, it must be when special susceptibility exists.

That heredity may furnish this susceptibility some believe on account of the fact that there are hyperthyroid families. The congenital cases, however, could be used in support of the other hypotheses, the congenitalism explaining not so much the hypothyroidism as the susceptibility to its cause, if that were found.

The number of cases adduced in favor of the toxic and infectious origin of goitre is very large. Among these are its attribution to chemical alteration in the water supply (Marine and earlier observers).

Recently McCarrison has interpreted differently the belief in a waterborne etiology, and has brought many cases in support of his view that it is infection with a colon bacillus contaminating surface water which accounts for the endemicity or apparent familiarity of goitre. Its variability of incidence he attributes to differences of individual resistance, the further assault upon immunity by an additional infection, such as coryza or tuberculosis, serving to render goitrous those individuals not previously so, even though already infected by colon bacilli.

Even if one of these theories is found true, the problem is not solved, for we have then to know whether the provocative agent acts upon the gland only by the medium of the sympathetic, or whether it does so directly chemically. Again, we must know upon what portion of its chain the sympathetic is attacked, and whether by a hormone or not. Finally, it will be necessary to know whether the sympathetic is stimulated actively or whether it is not merely given free rein through interference with an antagonistic inhibitory system of nerves, such as the vagal autonomic, a phenomenon the possibility of which has long been known with regard to the action of atropine upon the pupil.

Pathology.—The gland varies in appearance according to the acuteness and duration of disease.

Certain diseases and toxæmias do not alter the thyroid, while others do so.

Group 1.—Diseases which produce no effect. Bacilli: Typhoid. Cocci: Gonococcus (?), staph. albus, strep. puerperalis, pneumococcus, strep. tepuinus, strep. rheumaticus, staph. aureus, strep. faecalis, acute surgical. Protozoa: Coccidiosis.

Diseases due to unknown micro-organisms.—Polysarositis, carcinoma, sarcoma.

Gland diseases: Addison's disease, diabetes, jaundice.

Blood disease: Lymphadenoma, lymphatic leukaemia.

Group 2.—Diseases which induce a colloid or chronic hyperplasia.—Bacilli: Coliform (chronic in man), tuberculosis (chronic). Cocci: Micrococcus melitensis, meningococcus (slight). Protozoa: Syphilis (tertiary). Streptothrix: Actinomyces.

Diseases due to unknown micro-organisms.—Acute anterior poliomyelitis, rheumatic fever, scarlet fever.

Gland diseases: Chronic nephritis.

Blood diseases. Pernicious anæmia.

Group 3.—Diseases which cause a complete or acute hyperplasia.—Bacilli: Aerogenes (?), anthrax, coliform, acute (guinea pigs), diphtheria (man), diphtheria toxin (horses, guinea pigs), dysentery (asylum), dysentery (Flexner), dysentery (Shiga), Gaertner, mallei, tetanus, tuberculosis (acute). Cocci: Micrococcus catarrhalis. Protozoa: Syphilis (secondary), malaria.

Diseases due to unknown micro-organisms: Measles, broncho-pneumonia, smallpox, whooping cough.

Gland disease: Chronic nephritis, cirrhosis of liver.

Artificial toxæmias: Abrin, ricin, diphtheria toxin.

Note, that in croupus pneumonia the thyroid is not hyperplastic, while in broncho-pneumonia it is markedly so. It is to be regretted that

the respective presence of the Fraenkel and the Friedlander organism has not been ascertained.

The thyroid change is dependent upon amount, virulence and duration of the toxæmia. The first change is a loss of staining capacity in the colloid, which becomes granular, vacuolated and later disappears. There is congestion and ecchymosis, the epithelial cells become columnar and increase until the vesicles become indistinguishable; but hyperplastic secretion is exhausted. The duration and nature of the disease is sometimes ascertainable post-mortem by the thyroid condition.

The diagnosis as a rule is not difficult; but the condition is overlooked by the great majority of physicians, who are still prone to be content with the name neurasthenia. Neurological consultation, however, will soon change this, for a careful observation of a case of this kind is so instructive that future cases can be easily detected.

Space forbids detailed consideration of diagnostic features; but the most frequent signs are moderate tachycardia, variable blood pressure, occasional modifications of leucocyte proportions, variable undue fatigability, variable cephalalgias and paresthesiæ, flushings and dermographias, undue somnolence or insomnia, faintly marked eye signs, more especially the Stellwag and the glistening eye, very usually gastro-intestinal disturbance, and very often temperamental differences, whilst struma is rarely marked.

Example.—A single woman of 28 was referred through Dr. Claytor, Nov., 1916, because of six years of severe headaches and dizziness when fatigued, and because of flushing of the neck spontaneously or after hot drinks or alcohol, or when embarrassed. Since three years, there has been a "string-like" pain round the heart without apparent cause, worse after exertion and when fatigued. Since the age of ten there has been a dull ache through the breast and shoulders when tired. As a child she had very severe colds, frequently with a severe cough.

Examination showed a heart seven inches long and six inches across, one inch to right of sternum and extending beyond the left nipple, half an inch below, and two inches to the left; pulse of 93, rising to 111 on five stoops, and not falling below 100 after one minute; blood pressure 145 and 105, falling two points on standing. A sharply-defined neck blush halfway down the neck included the posterior lines of the ears. Slight Von Graefe sign was present, eyelids were congested and sclera glistened. The thyroid was enlarged, especially to the left, and had formerly been more so. Her hair had been falling out. The pulmonary resonance was retracted at the apex to one finger's breadth above the clavicle. The pilocarpine reaction produced a rise of blood pressure, blurring of the eyes, marked salivation, subjective palpitation, pulse

126; headache and a trance-like feeling. Adrenalin produced a fall of pressure to 119, slowing the pulse to 82; no subjective feelings.

Treatment.—She was prescribed 3 grs. adrenal substance three times a day and rest in bed.

The diagnosis was hyperthyroidism of mixed type.

The treatment by adrenalin resulted in fall of blood pressure to 122, and subjective improvement, interrupted, however, by rising from the bed prematurely.

Hyperthyroidea.—In thyroid deficiency the very simple treatment consists of feeding the gland in an amount to be ascertained in each case by trial.

When the secretion is excessive a difficult problem is presented, especially in the mixed or vagotonic cases. So far, the greatest improvement seems to be brought about by the feeding of adrenal substance or some of the proteins derived from the gland, more especially by such a process as that of Rogers. This residue may have to be combined with that of the thyroid in such cases as show marked asthenia, with a flabby gland and no loss of flesh. The addition of pituitary gland in some cases is desirable. The much-vaunted Forcheimer drug treatment has not been of the least benefit in any case which I have seen; but proper psychotherapy has been of considerable service in some instances. Of course, bodily and psychical rest in order to minimize the wastage of the hypermetabolism is often beneficial; but this measure must not be used blindly, for the inactivity is galling to some natures, and this aggravates psychological unrest, which is even more detrimental than physical exertion in some cases. Besides this, bed rest deprives the patient of proper physiological aid for the promotion of body movements of circulatory *vis-a-tergo* and of the splanchno-pelvic assistance given by bodily exercise. My clinical experience recalls a number of cases where bed rest caused an immediate aggravation of hyperthyroidia, shown by increasing tachycardia, aggravated eye signs, and augmentation of struma, besides an exaggeration of the subjective discomforts and distresses of the patient. See Case VI. in "Management of Confusional States" in *Proc. Am. Medio-Psy. Assoc.*, 1916; also *Medical Press and Circular* and *International Clinics*.

In the florid and active cases, which, however, do not usually enter the rubic of neurasthenia, direct interference with the gland itself may be justified, as we can so rarely determine the cause of its hyperactivation. There are several measures with this object in view. The best known is excision, and this had been perhaps the oftenest employed up to the present. There are still, however, advocates of ligation of the thyroid arteries, and there are some who countenance the production of

necrosis of a portion of the gland by injection of escharetics. The chief of these are urea hydrochloride and hot water. I cannot speak from experience of these measures, which at first sight appear like working in the dark. A method coming more and more into practice is the induction of the general atrophy of the gland by means of the Röntgen rays. I have had it used in a number of cases of the more florid type with extensive struma. It has always caused marked reduction of the gland and the condensation of its tissue.

The choice of the method for reducing glandular activity when its cause cannot be discovered or reached, is a difficult problem of clinical judgment; and each case must be considered in itself. Never should an arbitrary routine be followed; for direct interference with the gland does nothing to attack the source of the patient's disease; and the possibility of its leading to future untoward consequences by interference with the endocrine balance is a grave danger. Only active hyperthyroidism or the failure of medical treatment justifies so crude a measure as the ablation of the gland, and even its attack by Röntgenotherapy is not to be lightly undertaken.

2.—ADRENAL NEURASTHENIA.

In a previous publication this syndrome was extensively considered. (*Jour. Amer. Med. Assoc.*, Nov., 1914).

The *Pathogenesis*, save in cases of suprarenal tuberculosis, of post-infection adenitis and of syphilitic atezoma, is still to be found. The association of the condition with prolonged mental and physical strain is, however, very usual in my experience.

Pathology is the extensive destruction of the medulla of the gland. But that the cortex has an important rôle, too, is shown by animal experiment and by the case of Miss B. (*loc. cit.*), in whom the post-mortem examination showed complete loss of the cortex, while considerable medullary tissue remained at her death at the culmination of a typical Addison's disease clinically, although there was no tuberculosis.

Diagnosis.—The chief signs found are marked asthenia, without tachycardia or cardiac exhaustion, although fatiguability is sometimes extreme. The presence of apathy depends upon the temperament, as do the psychological disturbances, which are usually not severe. Low blood-pressure is constant, and pigmentation may be present. Either mild somnolence or wakefulness may occur. Atonic dyspepsia or constipation may be present; but they are rarely conspicuous features.

3.—VAGO-TONIC HYPO-PARA-THYROIDEA.

Complication by parathyroid insufficiency is not infrequent. The

latter cases are detected by the predominance of vagotonic phenomena, and by the presence of the Trousseau or the Cvosstek or Erb sign, along with the characteristic gastro-intestinal spasms which are revealed by the fluoroscope if the patient's description is not sufficient for the clinician.

Uncomplicated Hypoadrenia.—For these simple cases I need only refer to my previous articles. *J.A.M.A.*, 1914, Nov. *Arclly. Diagnos.*, 1916.

Example of Vagotonic Hypoadrenia.—This condition is well illustrated by the case of a young lawyer referred last winter by Dr. Wilmer, to whom he had been sent because of distress during prolonged use of the eyes. There were no physical abnormalities sufficient to account for this, so Dr. Wilmer referred the patient to me for neurological survey, partly because of an apprehensiveness which the patient had developed as a boy, and because of an increasing lack of stamina and indigestion and paræsthenia.

Examination showed a low blood pressure, 110 to 72, decreasing on standing, the following day falling to 90—62, increasing to 102 on standing. Pulse 102, positive Ascher phenomenon, positive Trousseau sign, Cvosstek sign, however, absent, and history of tetanic cramp and paræsthesise in the legs after prolonged sitting. The reaction to pilocarpine was excessive, there being chills, nausea, weakness and urethral dragging pain.

Treatment of the hypoadrenia alone by adrenal substance caused considerable improvement. This was later augmented by small doses of thyroid pituitary and gonads, when great improvement followed.

Treatment.—In most cases this is as simple as that of thyroid deficiency, and consists of feeding with dried adrenal glands. In a considerable experience of this substance, a curious phenomenon has shown itself, viz., the very usual fall of blood pressure resulting from adrenal feeding in small doses. Only when the dose is increased to a point which varies in different individuals does the blood pressure begin to rise. Another curious phenomenon is that after some months of improved health the patient is able to dispense with adrenal feeding and yet remain in good health with blood pressure augmented to normal. It seems that this must be due to the up-building of the adrenal gland by a specific protein obtained from the gland fed to him. This is the opinion of John Rogers as the result of his experience in feeding gland residues.

In the vagotonic cases the addition of calcium containing food is beneficial, and in mild cases all that is necessary. In the severer cases, the expensive parathyroid gland must be fed, and when neurohyperirritability causes great discomfort, belladonna must be had recourse to also.

Dyspituitary Neurasthenia.—The pathogenesis of these is as unknown as that of the former condition considered. That there is a familiar hyperpituitarism every observant clinician has discerned, but the autochthonous cases are so far inexplicable. That hypopituitarism may be due to the impediment to the gland's development, caused by mechanical compression by an insufficiently large sella turcica because of the failure to develop adequate use of the paws in infancy because of artificial feeding, or in childhood by too soft a diet, or that it may occur through lack of development of the root of the nose because of mouth breathing and consequent pharyngeal vascular stasis with adenoids, that indeed the lymphatic constitution may result in a hyperpituitarism thus induced, all these are views still hypothetical.

The pathology itself is simple enough, an active or large gland causing increased growth of the skeleton, leading to a height exceeding the family norm if it occurs before the epiphyses of the bones are united to their diaphyses, or producing acromegaly if occurring later than this. Either of these conditions may occur, however, without any functional abnormality of the nervous system. Either of these conditions may be followed by a consecutive atrophy of the gland, partial or complete, with the phenomenon of hypopituitarism. The relation of the recurrence of these phases to the gonads seems to be established, but it cannot be entered into here.

Pre-adolescent Hypopituitarism.—A girl, aged eleven years, was brought by her mother, a doctor's wife, in 1911, because of loss of interest in her lessons, of which she had previously been very fond; grimacing of the face in spite of all corrections; equivocation and fibbing in attempts to evade her duties; and greediness amounting to gluttony. She had always been a stout child, but had become enormously so during the preceding year or two.

Exploration of a possible psychological cause for this change of behaviour was fruitless, so psychomotor exercises were begun for the facial tics. The only effect of these was to arouse the patient's resentment, and they were not continued. Some time after, great somnolence manifested itself, the child becoming very lethargic and even dropping off to sleep in the middle of a task or at the table for a few moments. This directed attention to the function of the pituitary gland, so this was immediately explored by the lævulose test. As this showed great increase of the tolerance of the system to large amounts of sugar (300 grammes), it was decided that the pituitary gland was functioning insufficiently; great increase of weight, torpor, psychic inadequacy, and its attendant changes in behaviour being symptoms of lack of pituitary secretion. Feeding with increasing doses of pituitary gland was at once begun. The child

recovered completely in a few months, and after the onset of puberty was able to dispense with the pituitary gland; and now, six years later, is active and comparatively thin.

So-called Neurasthenia.—The head of a prosperous engineering firm was sent to me by Dr. Pressley, from California, because of exceedingly unpleasant and incommoding feelings, chiefly within the head, which his neurologist there obstinately attributed to neurasthenia. The patient is tired of two years' persistent and conscientious blunderbus-therapy, which included even cessation of work in a mountain camp for four months without the least benefit; and after high words with his friend, the neurologist, came East to seek another opinion, as he was convinced after studying many textbooks that he was not in the least a neurasthenic within the usual meaning of the term.

His illness began suddenly by a sensation of being drugged surging through him. This lasted ten days. He was now sleepy, more tired; he felt all dreamy and made mistakes at work—at addition, for instance. Special stress upset him; but he did not feel run down. He is not torpid, but is rather restless. Working mentally or physically makes him no worse, but he has no inclination for exertion, mental or physical, both of which he formerly enjoyed. Even to bathe or to go to the theatre is felt to be too much of a task. Sometimes the cloud leaves him for a few days. He is then perfectly alert. At his worst there is a congested feeling at the back of the head, and it can be always brought on by coffee or digitalis, each of which makes him very restless and somewhat confused. Alcohol has no effect upon him. He feels worse after lunch, before which he has a drawing feeling like, but not hunger. He has cephalic sensations, about three a month of three kinds.

First, neuralgic type, from draught, easily removed by two grains acetanilid. Secondly, from strong sun glare. Thirdly, a kind he cannot explain.

He kept a chart of his sensations during eight months while taking bacillus bulgaricus. This showed his condition never to have been better than "fair".

There have been no paræsthesias, nor blurring of vision; no loss of weight, no chilliness, no headaches.

Reflexes are not brisk, pupils equally react, optic disc is normal, visual fields uncontracted; but the eyelids are discolored brownish-red and large veins. Blood pressure 119 and 75 diastolic, rising on standing. Pulse 60. He has lost sexual inclination and power, but had always been under par in this respect.

Experiments were made with injections of pituitrin, adrenalin, pilo-

carpin, emetin. Pituitrin caused only a slight rise of blood pressure and slowing of pulse, and the effects passed off in twenty minutes. Adrenalin hardly affected him, and caused no midriases; a slight fall of blood pressure and slowing of pulse after twenty minutes. Pilocarpin nitrate (grain $\frac{1}{8}$) caused flushing and moisture of face and hands, disappearance of slight headache, slight rise of blood pressure and pulse rate, slight nausea followed by a fall of blood pressure 15 points, severe salivation, blurred vision and slight midriases. Emetin caused only slight midriases and a fall of blood pressure. These experiments thus showed slight vagotonic tendency only. This denotes overaction of the pneumogastric, third in part and sacral autonomic nerves, which form an antagonist to the sympathetic nerves in vegetative functions, keeping them in balance as regards secretion of the ductless glands, as well as of those of digestion, besides balancing the tonus of viscera and blood vessels. Mark describes his symptoms thus in the "Autobiography of an Acromegalic":

"A general feeling of discomfort, sometimes with intense fatigue. A sensation akin to that of being partially under the influence of an anæsthetic or some drug. Sometimes a feeling of restlessness or impatience, with perhaps a craving for food. Most frequently the desire to keep absolutely still. Intolerance of any noise or din. Intolerance of any strong light, of the glare of the sun reflected off the pavement when out-of-doors.

"When I am at my worst I still seem to be master of all my mental facilities, but lose the inclination to make the best of them.

"It seems as if all one's natural zest were gone. All interest in what is going on around one, or in what is going to happen, is lost for the time being."

In so mild a case, however, I felt that a biological test would be desirable in confirmation. Accordingly Abderhalden tests were made at the Corson White Laboratory in Philadelphia.

The reactions were negative to thymus, thyroid, adrenal, pancreas and testes; but markedly positive to pituitary. Radiograph examination then showed marked enlargement of the sella turcica, especially in length and breadth, but without deepening.

Treatment.—As tests is regarded as antagonistic to pituitary, didymin was prescribed. In six weeks no benefit was obtained. Thereupon, a small amount of thyroid was added, still without benefit. Dr. Foster Kennedy, of New York, who had also seen him, had first prescribed hormotone, and later thyroid and adrenal. The latter produced a wakefulness similar to coffee, but no improvement, and as it caused a strained feeling in the heart he gave it up. Later pituitary gland was taken along with certain drugs, no benefit accruing.

I am now contemplating the Röntgenization of the sella turcica, a procedure which has been successful in diminishing pituitary over-growth in two cases of mine previously reported. Lannois' Adipose Pituitary Syndrome Ameliorated y Deep Röntgenization, *J.A.M.A.*, 1912. Pituitary Over-growth Reduced by Radiotherapy, *Wash. Med. Annals*, 1915-1916).

Pluriglandular Disturbances.—A few words must be said about pluriglandular conditions. They are very complex and each case must be studied as an individual problem by an analysis of the various physical signs and a reference to the disturbance of the proper gland.

In children with decided symptoms the diagnosis is less difficult, but in the adult it is at present sometimes impossible to pick out all the elements in a difficult case of this kind. The following is an illustration:

Paraesthesia and Ocular Asthenia.—A woman, aged 42, was referred by Dr. Wilmer, in February, 1916, on account of a swimming feeling in the head, and an aching of the limbs, especially in the heels; pricking sensation, especially in the knees; and great nervousness, trembling and starting on the least provocation. Sleep was irregular. Until eight years before there had been periodic headache, nausea, and vomiting, lasting about twenty-four hours. (Migraine). There was pain in left shoulder and arm, and at times loss of power in using the hand. For two years this had extended to the right arm also. For eight years she had scarcely used her eyes, as doing so makes the head swim. Crowds and conversation enervate, may even cause weeping.

She had always been retiring and a blusher. Her nervousness had been greatly aggravated by the death of her father, whom she had nursed for fourteen years, during which he had been blind for twelve. The only objective abnormalities were tremor and perspiration of the hands, enophthalmos, slight dermatographia, tachycardia, pulse 100, standing 114, after five stoops, 141. Blood pressure 150, diastolic 90, standing 125 and 84, and an increase of weight from 129 lbs. to 169 lbs., 29 lbs. of which had come in the preceding year. There was a lymphocytosis 33 per cent., total white cells being 12,200. There were subcutaneous tenderness. Phenolphthalein returned 50 per cent. in 70 minutes (Hagner).

The condition was regarded as endocrine, and the patient was given mixed hormones and an organic phosphorus.

In a week the blood pressure rose to 145—90, 148—94, on standing. The pulse rate fell to 96, 99 and 108 sitting, standing and after five stoops respectively, and she was greatly improved subjectively and had more energy.

The diminution of pulse continued on her return home, falling sometimes to 72 in the morning, and 76 in the evening, and averaging

under 80, the former, a little over 80. There was less pain and she felt better, although still having neuralgic effects; but some cardiac pain occurred, which I attributed to the pressor hormones being taken.

Two months later the blood pressure had fallen to 124 standing. She had further improved and would sometimes feel rested on waking, which she had not done for some years, while tremor had ceased. The pulse rate, however, had risen towards 90. In September she was not so well again, the hormones having had to be interrupted because of the cardiac distress and anxious feelings they produced. But she still sleeps better, has more strength, has less orbital pain and nervousness, and had lost 12 lbs. She was given pituitary gland, and the following month had a return of pains behind the eyes and swimming in the head and aching in the limbs. She was then given anterior lobe of pituitary because worse. She is now better again upon the treatment at first being resumed.

The general nervousness which was recognized by Dr. Wilmer as so important a feature was in this case not due to a psychological situation. The woman's attitude towards herself and others was perfectly normal. She had no obsessions, morbid anxieties, phobias, or hysterical ideas. The inability to use the eyes without disturbance was due to a neural inadequacy, which must therefore have a physical source. That this was of a metabolic nature is to be inferred from the neuralgias, hyperæsthesias, tachycardia, raised blood pressure and increase of weight, tremor, dermatographia, hyperhydrosis. That hyperthyroidia is concerned is shown by the tachycardia and tremor; but that it is not a sole cause is shown by the lymphocytosis of the blood with the marked asthenia. Some clinicians believe these signs indicate thymus typerphasia. But in this case no choking sensations are present.

The differential diagnosis of endocrine neurasthenia from psychogenetic states is well illustrated by this case.

Hyperæsthesia of subcutaneous tissue occurs in the adiposis of anterior pituitary insufficiency. But there is no somnolence to corroborate this.

The case is instructive as showing the complexity of the data required for the interpretation of a functional case of this type, and that physicians are no longer justified in a diagnosis of prostration or neurasthenia, lest of all to attributing to psychoneurosis such phenomena as these. Psychoneurosis has very definite characteristics susceptible of clinical demonstration. The fact that this case is not yet completely adjudicated makes it all the more impressive as an illustration of the objects of this presentation.

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CURRENT MEDICAL LITERATURE

SYPHILIS WITHOUT CHANCRE IN WOMEN.

Gaucher (*Journal de Médecine de Paris*) states that in most cases of allegel syphilis *d'emblée* the chancre is simply overlooked. Cases, however, do exist in which chancre is absent because the virus is allowed to enter the blood directly. From another viewpoint the chancre is simply an epidermal reaction to the virus; so that without epidermis there can be no chancre. In such cases the secondary eruption is the primary manifestation. The author has seen two such cases. In one a surgeon wounded himself deeply with a bistoury while operating on a patient with secondary syphilis. No chancre developed in the site of the injury, but in due time a roseola appeared. The other case was an old one in the service of Professor Fournier. An attempt was in progress to treat psoriasis with intra-muscular mercurial injections. A patient with syphilis having accidentally received a similar injection, the disease was propagated to a psoriasis patient without any formation of chancre. Two analogous cases occurred in women who presented themselves with syphilitic roseola. Both patients had just been discharged from the surgical service where they had undergone abdominal operations. The disease must have been contracted in the hospital, but no port of entry for the virus could be found and no enlarged lymph node was anywhere in evidence. The author had been treating for secondary syphilis an assistant of the operating surgeon. His mouth was the seat of mucous patches. There could be no doubt that virus had somehow been transferred from this patient to the peritoneal cavity. The second woman, however, had not been in contact with this syphilitic assistant, so that the source of her syphilis could only be conjectural. As long as thirty years ago the author was making the most minute examination of women with "overlooked" chancre. In case after case he failed to find the slightest evidence. There were no traces of chancre, such as is the rule in men; so that it is almost hopeless to find evidence of chancre in women several months after infection. This statement refers, of course, only to the vagina and cervix uteri, for chancre of the vulva and anus is subject to the same laws as chancre in the male. This lesion occurs regularly on cutaneous surfaces and on such mucosæ as are covered with pavement epithelium. There is in this regard no reason why they should not appear anywhere in the vagina or cervix uteri and behave like chancres elsewhere, save that the location is a rare one, like the male urethra. It is, however, very different with the corpus uteri, lined as it is with cylindrical epithelium. Surfaces lined with pavement epithe-

lium do not absorb fluids, while in the other form the reverse is the case. Hence the author believes that the syphilitic virus after copulation readily finds its way into the cavum uteri and passes directly into the blood without epithelial or lymphatic reaction. In some cases an ovum may be infected from the contaminated male principle. This hypothesis will explain the latency so frequently seen in female syphilis, the first outbreak often appearing many years after infection as late tertiary syphilis.—*Medical Record*.

THE VALUE OF MEDICINE TO THE ARMY.

In days of old the civil population cared for the wounded after a battle in such wise as they were able to. In modern warfare there is practically no civil population in the fighting area. The houses are usually destroyed and the wounded are so numerous that no ordinary civilian population could possibly care for them. Ambroise Paré, in discussing the care of the wounded in the sixteenth century, gives instructions to "sweetly cut the throats of such as are seriously wounded, so as to end their sufferings." Even if the dictates of humanity at the present time permitted the practice advocated by Paré, it would not be good policy from a strictly military point of view, for a very large proportion of the wounded can be restored to duty. In the German army it is said that 92 per cent. of the wounded recover, and where twenty thousand casualties occur in a comparatively small area within a few hours' time, as has happened frequently in the present war, the restoration to duty of this 92 per cent. becomes a serious element in preserving the organization at the front. Moreover, as pointed out by Colonel T. H. Goodwin, of the British medical service, the removal of the wounded from the field is a very important factor in preserving the morale of the surviving troops. Fresh troops would undoubtedly be affected most disastrously by the sight of the ground cumbered with the number of wounded which collect in a battle lasting several days. The value of the medical service to the army in the relation to the wounded is therefore clearly apparent:.

The most valuable service rendered by medicine, however, is the prevention of disease; the present war has been unique in this respect. In the British war in South Africa, 57,000 cases of enteric fever occurred, with 8,000 deaths. In that campaign, sickness was responsible for the loss of 86,000 men by death and invaliding. In 1802, 50,000 troops were lost by yellow fever out of the 58,000 in the San Domingan expedition. In 1812, typhus fever killed 25,000 out of 28,000 troops, and in the war with Turkey, one army which left Russia 100,000 strong, left 85,000 dead from disease in Turkey. The German army in 1870-71 had

73,000 cases of enteric fever with nearly 7,000 deaths. Under the influence of vaccination, typhoid and para-typhoid inoculation, and improved sanitary arrangements, the medical service has been able to reduce the deaths from smallpox, typhoid, and para-typhoid fever to an almost negligible number, and so far no serious epidemic of any sort has made its appearance in the western field, though there has been trouble in Serbia and Roumania with typhus fever. A comparison of the conditions existing in the army now with those cited above demonstrates clearly the immense value which medicine has rendered to the armies, and furnishes ample justification for the most liberal expenditures, both of men and money, in the organization of the medical department.—*New York Medical Journal.*

AN ANALYSIS OF 125 CASES, WITH A NOTE ON THE TREATMENT, BY LEIGH F. WATSON, M.D., CHICAGO.

The author reviews the records of 125 goitre patients, considering the cause, age at onset, and effect of previous operations in certain cases. He illustrates by tables the degree of enlargement, and reports the results following quinine and urea injection.

In 43 per cent, no exciting cause could be elicited; in the remaining 57 per cent. the onset could be ascribed to a definite exciting cause. Of the 125 cases, 15 per cent. was caused by worry; parturition was responsible for 11 per cent., and in 9 per cent. the condition was due to puberty. Twenty per cent. gave a family history of goitre and 11 per cent. of nervousness; 19 per cent. had had tonsillitis. Forty-five per cent. of the exophthalmic patients first noted the goitre eight years before examination at the average age of 34 years, and the symptoms developed at the age of 40. Fifty per cent. gave a history of acute onset, two years before coming under observation at the average age of 29 years. Sixty per cent. of the non-exophthalmic patients observed that they developed more marked symptoms of intoxication as the goitre became more chronic.

Before coming under treatment, five exophthalmic patients had had ligation of the superior thyroid arteries with temporary relief; four had had partial thyroidectomies without permanent benefit; three had had pelvic operations without lessening the hyperthyroidism; the condition of one was aggravated by a panhysterectomy, and one had had a tolsillectomy six months before without influencing the severity of the exophthalmic symptoms. Enlargement usually begins in the right lobe, sometimes in the isthmus and least frequently in the left lobe. In 95 per cent. of the exophthalmic patients of this group both lobes and isthmus were involved before the goitre became exophthalmic. A majority of the patients noticed increasing symptoms of intoxication as the goitre

became more chronic, gradually involving both lobes and isthmus. Eighteen per cent. of the mildly toxic patients became exophthalmic after an average period of five years. This study indicates that both non-toxic and toxic goitre occur later in life in non-goitrous localities than in sections where the disease is more prevalent.

The following tables show the results after quinine and urea injections:

Effect of the Injection on Symptoms—

	Relieved.	Improved.	Not Imp.
Exophthalmic	85 (aver. 4 mos.)	15	0
Non-exophthalmic	84 (aver. 2 mos.)	10	6

Effect of the Injections on Goiter—

	Cured.	Reduced.	Not Imp.
Exophthalmic	80 (aver. 5 mos.)	15	5
Non-exophthalmic	75 (aver. 4 mos.)	12	13

Two patients suffering with severe toxic goitre with exophthalmos of several years' duration received only slight benefit; later a lobectomy was done without additional relief. Four exophthalmic patients were pregnant two to four months. Relief from hyperthyroidism followed the injection and they went to term without recurrence and had normal deliveries. The number of patients cured is highest in the group of those who came for treatment early in the disease; the benefit received by those who came later was in proportion to the degree of damage done the circulatory and nervous systems. A goitre that has once disappeared has never recurred. A majority of the patients in this group have been under observation for two to four years. The quinine and urea injection has limitations the same as any other treatment for goitre and can be employed only in selected cases. The treatment of the exophthalmic type in young adults is very difficult, and should be attempted only under the most favorable circumstances. If the best results are to be secured, hyperthyroidal patients must have at least a year of mental and physical rest after treatment.—*New York Med. Jour.*, 22nd September.

SUGAR IN MEDICINE.

The Sugar Commission of the New York Pharmaceutical Conference distributed this week about 40,000 pounds of sugar to the 2,400 pharmacists of Greater New York exclusively for medicinal and pharmaceutical purposes. Few physicians realize how important a part sugar plays in medicine until confronted with such figures. In the United States Pharmacopœia there are thirty-nine preparations, and in the National Formulary there are 179 preparations which contain sugar. The pharmacist has besides hundreds of unofficial preparations on its shelves in which sugar is a component. This 40,000 pounds, of course, enters only into preparations which are manufactured by the pharmacist himself.

The New York Pharmaceutical Conference has done excellent work for the pharmacist in arranging with the United States food administration for supplies of this necessary ingredient.—*New York Medical Journal*.

PARAFFIN AND BISMUTH FOR GASTRIC ULCER.

Dr. L. J. Pieton, writing in the *British Medical Journal*, remarks that he has found a mixture of bismuth subnitrate and liquid paraffin of use in the treatment of gastric ulcer. The bismuth salt may be rubbed up with ordinary liquid paraffin to form a smooth cream. It is taken thus without producing much nausea, and with increasing tolerance.

The liquid paraffin is a good vehicle for bismuth, undoing its constipating effect. The patient is more comfortable, and less flatulent than when taking bismuth alone.

The action of the combination may be supposed to resemble that of bipp in the treatment of external wounds. The special electrical effects of paraffin on wounds, mentioned in your issue of October 20th, are unfamiliar ground to me. Apart from that, the combination deserves a trial.

SYPHILIS AND CARDIAC DISEASE.

Gaucher (*Bulletin de l'Académie de médecine*, October 2, 1917) asserts that all lesions of the aortic valve or root of the aorta which do not follow the acute endocarditis of rheumatic fever are of syphilitic origin. Careful examination of aortic cases with vague pains supposed to be rheumatic often reveals signs of tabes, in particular loss of the patellar reflex. Some cases of hemiplegia ascribed to syphilitic cerebral arteritis are in reality due to embolism arising in an incorrectly interpreted or undiscovered aortic lesion. Sudden death is nearly always due to syphilis, whether taking place through aortitis and embolism, perforating myocarditis, or angina pectoris. The latter, when due to inflammatory changes and atresia of the coronaries, is regularly of syphilitic origin, a statement proved by the anamnesis, the serum reaction, and especially by the often very effective action of treatment with mercury and iodides. Cardiac rupture with sudden death is due to gumma of the myocardium. Lesions of the bundle of His and the permanently slow pulse are of syphilitic nature, as are also, as a rule, hypertrophic myocardial nephritis. From clinical observations Gaucher is likewise convinced that some instances of mitral insufficiency are due to syphilis, vague, so called rheumatic pains are of no etiological significance and often upon inquiry a former syphilitic infection will be admitted. In the absence of acquired syphilis, congenital syphilis may also be a cause of obscure or overlooked heart lesions.—*New York Medical Journal*.

PERSONAL AND NEWS ITEMS

The Poets' Committee, which is raising funds for ambulances in Italy, announces that the cash receipts up to noon, Saturday, November 10th, were \$113,400.08. Adding to this \$10,000 assured from five special subscriptions of 2,000 now under way, the grand total is \$123,400.08.

America's first reconstruction hospital will be built in Boston by the Order of Elks. The Elks' War Relief Commission, at a meeting in Washington on November 8th, announced that the Government had agreed to accept the hospital. The institution will cost \$250,000 and will be erected on Parker Hill. It will consist of a complete unit of twin ward hospital buildings, vocational workshops, barracks, mess hall and post exchange, and is to be a standard for similar hospitals. Part of the \$1,000,000 relief fund contributed by the 500,000 Elks of the country will be used.

The American Review of Tuberculosis is the only strictly medical journal on tuberculosis published on the American continent. Through its articles and abstracts it brings practically the entire medical field of tuberculosis literature under one cover in concise, readable form.

We regret to announce the death, on November 4th, of Sir D. C. McVail, at his residence in Glasgow, Scotland. Though in his 73th year, the war brought him back to active hospital work, and he was attached to two war hospitals. He rejoiced in being able to do such work, but it was a severe strain upon his strength. He continued to work while suffering from a cold, which was followed by pneumonia, to which cause his death was due.

Representatives of the Departments of Health and Charities of the city of Philadelphia met on November 12th to discuss the advisability of making the so-called social diseases reportable. It was the consensus of opinion of those present that the proposed plan should be put into effect. The Health Department will take steps to make these diseases reportable in the near future.

Dr. Franklin P. Mall, professor of anatomy at Johns Hopkins University, died November 17th. He was born in Iowa in 1862 and was graduated in medicine from the University of Michigan in 1883. He studied later in Leipsic, Heidelberg and the Johns Hopkins University, where he was appointed an instructor in pathology in 1888. In 1889 he went to Clark University, at Worcester, Mass., as professor of vertebrate anatomy, remaining until 1892, when he went to the University of Chicago as professor of anatomy, but returned to Baltimore to take the chair of anatomy in Johns Hopkins in 1893. In 1915 he was appointed

director of the department of embryology in the Carnegie Institution at Washington.

Sir Leander Starr Jameson died at his house in London, Eng., on November 26th, in his 65th year. He and M. Clemenceau were the two most striking figures contributed by medicine to politics in this age. Both were general practitioners in their early days; both in early middle life took to politics on very stormy seas. Jameson was for four years Prime Minister of Cape Colony, and Clemenceau is just commencing his second term of office and fourth year as Prime Minister of France.

At the meeting of the Royal Society on November 8th Professor A. D. Waller made a communication showing by demonstration that emotional response of the human subject is characterized (and can be measured) by alterations of the electrical resistance of the skin, independent of the well-known muscular and vasomotor and secretory manifestations of emotion.

The Health Officer of Rochester, Dr. George W. Goler, has devised a unique method of keeping venereal disease patients under dispensary treatment. The plan calls for regular periodic visits to the department's clinic by each patient. He is told upon leaving when he is expected to come back again, and if he does not appear a written notice is sent to his house, stating that unless he presents himself immediately for further advice and treatment he will be visited by a police officer. If he still persists in neglecting treatment a warrant for his arrest is sworn out and he is haled into the local police court and committed to the care of the health department for an indefinite period.

Sir Robert W. Philip has been appointed to the chair of tuberculosis in the University of Edinburgh. This is the first professorship of tuberculosis in Great Britain.

Dr. Breffney O'Reilly has gone to Texas with the Aviation Corps as medical officer.

Dr. S. Hawden, who was pathologist to the Government laboratory at Agassiz, B.C., has been made Dominion pathologist, in succession to Dr. C. H. Higgins, who resigned.

The Military Hospitals Commission has announced the establishment of a convalescent home in London for 300 beds, to be increased to 600 beds as the demand arises.

Dr. George C. Livingstone, who was assistant superintendent of the Toronto General Hospital for some time, has resigned to go overseas. He will be attached to Exhibition camp for some time.

Lieut.-Cols. I. H. Cameron and C. L. Starr and Major D. MacGillivray, of Toronto; Lieut.-Col. J. D. Courtney, Ottawa, and Dr. Wilson, X-ray expert, Montreal, have visited Canadian military hospitals.

Capt. (Dr.) W. B. Stark, of Toronto, a graduate of 1915, who went overseas with the Ontario Hospital, is home on a visit. He has seen service in France as regimental surgeon to the 5th Forestry Battalion. He will return again to the front.

The following doctors are members of the House of Commons: From Ontario, Hon. J. D. Reid, Grenville; R. K. Anderson, Halton; A. E. Hanna, Lanark; Peter McGibbon, Muskoka; J. A. Chabot, Ottawa; Chas. Sheard, Toronto. Quebec, Hon. H. S. Beland, Beauce; T. Gervas, Berthier; E. Savard, Saguenay; J. E. Fontain, Hull; H. Deslauriers, Ste. Marie. Manitoba: H. B. Whidden, Brandon; A. E. Finley, Souris; R. M. Blake, Winnipeg. Alberta: Michael Clark, Red Deer. Saskatchewan: E. T. Myers, Kindersley; W. D. Cowan, Regina. British Columbia: S. Bonell, Kootenay.

Major McCrimmon, of the Western Ontario Regiment, has been detailed for duty with F unit, M.H.C.O. It is believed that he may shortly take over command of the convalescent hospital. Capt. F. H. Sutherland, C.A.M.C., has been attached to the 6th Depot Battery as medical officer.

Since September last four men have died at St. Michael's Hospital as a result of drinking essence of ginger. One victim had his digestive canal badly damaged by the essence. In all nine men were brought to the hospital in an unconscious condition after partaking of this latest substitute for alcoholic beverages.

The Board of Control has recommended \$33,000 to the Women's College Hospital for additional accommodation, and \$17,000 to St. Michael's Hospital to current account. These are in addition to the grants of \$50,000 to the General, \$20,000 to the Western, \$38,000 to the Children's, and \$40,000 to Hospital for Consumptives.

Dr. Andrew Taylor Still, founder of osteopathy, died at his home in Kirksville, Mo., on 12th December. Dr. Still began the practice of drugless treatment for disease in 1874, and there are now between seven and eight thousand practitioners in all parts of the world. He was president of the American School of Osteopathy.

Figures complete to November 15th indicate that there were 10,953 returned soldier patients on the strength of the Military Hospitals Commission command. This figure is 754 greater than on the first of the month. Of these 8,913 are in convalescent hospitals, 1,311 in sanatoria, and 729 in various other types of hospitals. On November 7th there were 19,059 Canadian casualties in hospitals in the United Kingdom, a decrease of 196 in a week.

On a recent date a deputation of dentists waited on Premier Sir William Hearst, urging the need for dental inspection in all the schools.

Sir William pointed out that the law now gave the opportunity for such inspection; but thought it would be a drastic action to make inspection compulsory.

The Hotel Dieu Hospital, worth \$600,000, at St. Hyacinthe, Que., was destroyed by fire on 28th November. The temperature was down to zero, but the patients were removed to private homes throughout the city. There were in the institution many aged patients and orphaned children. The hospital was managed by the Grey Nuns.

Reference has been made in the British press to the heroic conduct of Dr. Ian Thompson, surgeon of the British destroyer *Strongbow*, during the recent naval engagement in the North Sea, when she was sent to the bottom by a German cruiser. He was instrumental in saving no fewer than 16 lives from a watery grave, and after one of his limbs had been badly shattered, continued to care for the wounded and suffering while in danger of instant death. Dr. Thompson is a son of the late W. H. Thompson, Esq., of Barbour Grace, Nfld., and had a brilliant career as a medical student at the University of Edinburgh. He is the youngest brother of Dr. Finley Thompson, of Elmwood Avenue, Toronto.

Major R. E. Wodehouse, M.D., C.M., who went with the first Canadian contingent as a water expert, and in France had very important sanitary duties to perform, has been promoted to the rank of lieutenant-colonel.

Capt. G. W. Armstrong, M.D., R.A.M.C., who has been attached to the 8th North Staffordshire Regiment, has won the Distinguished Service Order. He is a son of Mr. F. F. Armstrong, 33 Summerhill Ave., Toronto.

Flight-Lieutenant Norman A. Magor, of Montreal, has been awarded by the King the Distinguished Service Cross.

Capt. George Ewart Wilson, who went with the University of Toronto Hospital, and afterwards was chief surgeon to the Kitchener Hospital, Brighton, has returned home.

Lieut.-Col. R. M. Simpson, M.D., C.A.M.C., of Winnipeg, has been appointed to the command of No. 1 Canadian General Hospital in France.

Capt. W. B. Shaw, M.D., C.A.M.C., who was wounded in France, has returned and been appointed to the command of the Fairmount Military Hospital, Victoria, B.C.

Capt. Armstrong, C.A.M.C., who was decorated with the Military Cross and the *Croix de Guerre*, has been appointed to the command of the Ross Military Hospital, at Moose Jaw, Sask.

Col. J. A. Roberts, who had charge of the University Hospital at Salonica, has been appointed assistant director of medical services, London.

Dr. R. J. Wilson, of Toronto, who did service overseas, was recently quite ill in the Base Hospital, on Gerrard St., Toronto.

The Military Cross has been awarded to the following: Capt. Ronald Macdonald, Winnipeg; Capt. Robert Manion, Fort William; Capt. Archibald McCausland and Ashley Cooper, Alberta; Capt. W. Lawson, H. Mustard and Fred Pees.

Major (Dr.) S. S. Burnham was given the Distinguished Service Order on October 18, and Capt. (Dr.) H. Burnham received the Italian Military Medal for Valor in May, 1917. They are sons of Dr. G. H. Burnham, of Toronto.

Dr. Fred Burnham, of Winnipeg, served for some time in a Serbian hospital and was awarded the decoration of St. Sava.

Dr. John Malloch, who went with the University of Toronto Hospital, was given a surgical service in the Ontario Hospital at Orpington. Latterly he is doing surgical work in the University Hospital at Basingstoke.

Mr. John Hall has been appointed by the Government of New Brunswick to make an investigation into the public control of food, its proper protection, the care of milk, the condition of slaughter-houses, and the sanitation of stores, schools, water supplies, etc. He will report upon these matters, and this will be used as the basis for the creation of a Health Department.

It is proposed to establish a municipal hospital to accommodate Elma, Oakdale, Kindersley and other adjoining places in western Saskatchewan.

A grant of \$10,000 by the Government of British Columbia has been made to the hospital at Kootenay.

Medical advice was sent by wireless from the doctor of one ship for the captain of another, a distance of 750 miles. The message asking for help was picked up by chance.

Capt. (Dr.) G. W. Armstrong, who has already won the D.S.O., has been mentioned for distinguished service by Sir Douglas Haig.

Capt. (Dr.) G. M. Dale has been recently mentioned by Sir Douglas Haig in his despatches.

Capt. (Dr.) G. A. McLarty has been mentioned by Sir Douglas Haig. The news came at the time Capt. McLarty was in Canada for the purpose of being married.

Lt.-Col. J. Edgar Davey, of Hamilton, will command the Brant House Military Hospital. He graduated in 1902.

Capt. (Dr.) F. M. Walker, M.C., has been located a prisoner in Germany. He served in the C.A.M.C. and the R.A.M.C.

Capt. (Dr.) D. E. Staunton Wishart, son of Dr. D. J. Gibb Wishart,

of Toronto, has been favorably mentioned by the commander-in-chief of the British forces at Saloniki for his distinguished services. Dr. Wishart has had a most varied experience and is now in Palestine with General Allenby.

OBITUARY

G. L. SINCLAIR, M.D.

The late Professor Sinclair was at one time in charge of the chair of anatomy in Halifax Medical College, and later on became professor of nervous and mental diseases. He was also Dean of the college for some years. He was born at Norfolk, Virginia, 65 years ago. He graduated from Columbia University in 1872. He was an excellent lecturer and teacher. In 1898 he was appointed inspector of humane institutions for Nova Scotia, and was responsible for many reforms in the jails and asylums of the Province. He also urged the establishment of an institution for the care of the feeble-minded. He was president of the Provincial Medical Society, and represented the Government on the Medical Board. As the superintendent of the asylum he founded the nurses' training school. Through ill-health he retired a few years ago. He died on 7th October, 1917, from an attack of pneumonia.

JOHN McRUER, M.D.

Dr. McRuer graduated from Toronto in 1907, and practised in Huntsville, Ont., for some time. He was born in Ayr, Ont. After a lingering illness he died in Denver, Colorado, on 31st October, 1917.

CHARLES MERRILL SMITH, M.D.

Dr. Smith died at Alberni, B.C., last October. He was born in 1848, and graduated from the University of Toronto in 1870. At one time he practised at Sault Ste. Marie.

ROBERT COLLISON, M.D.

Dr. Collison, of Edmonton South, died on 20th October, 1917, at the age of 73. He graduated from McGill in 1878, and practised for some time in New York. He went West many years ago and located in the village of Stratheona. On account of ill-health he retired a year ago. He is survived by his widow and adopted daughter.

RICHARD JONES, M.D.

The death of Dr. Richard Jones, a former practising physician in Toronto, who moved to Cobourg in 1901, took place at his residence there on 21st December, in his 84th year. He was the son of a Methodist clergyman, Rev. George Jones, and was born in Clarke township. He was educated at Albert College, and took his degree in medicine at the University of Buffalo, later taking a post-graduate course in New York. He practised his profession in Madoc (being there at the time of the discovery of gold), in Port Perry, Toronto and Cobourg. At Port Perry he entered into partnership with his brother, Dr. Geo. W. Jones, who some time afterwards removed to Imlay City, Michigan. Dr. Jones married Miss Lucinda Mallory, only daughter of Mr. C. R. Mallory, Cobourg, who, with their only daughter, Miss Laura L. Jones, B.A., of the Colbourn Collegiate Institute staff, survives him. The funeral services were conducted by his pastor, Rev. (Capt.) H. B. Kenny, and were largely attended. The interment was in the Cobourg Union Cemetery.

WILLIAM JAMES SCOTT, M.D.

Dr. William James Scott, son of Rev. Dr. E. Scott, editor of *The Presbyterian Record*, died at the Montreal General Hospital on 28th November from septic infection contracted a week previously in his practice. He was 36 years of age. His wife and two children survive him.

RICHARD ALFRED IRELAND, M.D.

Capt. Dr. Ireland was killed in action in November. He was a Toronto graduate of 1911, was reared and educated in Trenton, and after graduation located in Clinton, Ont. He went overseas as a surgeon to the 76th Battalion.

KENNETH ANGUS McCUIISH, M.D.

Dr. McCuish went to the front with the St. Francis Xavier Hospital. After some service in England he proceeded to France, where he received wounds from which he died a short time ago. He was a graduate of Dalhousie University and practised at Glace Bay. He leaves a widow. He was 43 at the date of his death, and graduated in 1903.

ARTHUR M. FISHER, M.D., R.A.M.C.

Dr. Fisher graduated from McGill in 1914. Early in the war he sought service abroad, and in the summer of 1915 was medical officer to a transport running from England to Alexandria. The vessel was torpedoed, but he escaped, though losing everything in his possession. Later he underwent a serious operation in England, and returned to Canada

for a time to regain his strength. He returned to active service in England and later on in France, where he met his death in action in the early part of November, 1917.

BOOK REVIEWS

HISTORY OF MEDICINE.

History of Medicine. Suggestions for Study and Bibliographic Data. By Fielding H. Garrison, A.B., M.D., Principal Assistant Librarian, Surgeon-General's Office, Washington, D.C. Second edition, revised and enlarged. Octavo of 905 pages, with many portraits. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, \$6.50 net; half morocco, \$8.00 net. J. F. Hartz Company, Toronto, Agents.

This work has now reached a second edition, which follows the plan of the first. The first chapter treats of the forms of ancient and primitive medicine. The second chapter takes up Egyptian medicine. This is followed by an account of Sumerian medicine. Following this come Green, Byzantine, Mohammedan and Jewish, medieval and renaissance periods. Special chapters are devoted to the seventeenth, eighteenth, nineteenth and twentieth centuries. The book is largely built on the biographical plan, and is exceptionally well illustrated. The highest praise is due both author and publishers.

IMPOTENCE AND STERILITY.

With Aberrations of the Sexual Functions and Sex-gland Implantation. By G. Frank Lydston, M.D., D.C.L., formerly Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Medical Department of the State University of Illinois; Member of the American Urological Association; Fellow of the American Medical Association; Member of the Society of Authors, London, Eng., etc. Chicago: The Riverton Press, 1917. Price, \$4.00.

Dr. G. Frank Lydston is a well-known writer on all topics pertaining to generative organs. This work of his embodies much of his teachings upon these organs and their diseases. In this book are to be found chapters on hermaphroditism, diseases of sexual function and instinct, sexual perversion, satyriasis and nymphomania, masturbation, sterilization and asexualization, sterility and impotence, sterility and impotence in the female, spermatorrhœa, sexual neurasthenia, and sex gland implantation. The book is fully illustrated and contains much interesting matter. In this work of moderate size one can find the latest and best view upon these subjects, and also the views of the author as the result of his many years of careful study. The book is worthy of careful study.

MEDICAL WAR MANUAL NO. 2.

Notes for Army Medical Officers. By Lt.-Col. T. H. Goodwin, R.A.M.C., Author of Notes for Medical Officers on Field Service in India, and Field Service Notes for R.A.M.C. With an introductory note by Surgeon-General William C. Gorgas, U.S.A. Illustrated. Philadelphia and New York: Lea and Febiger. Price, \$1.00.

This is an excellent pocket manual for the medical officer on the field. It is fully illustrated and gives careful directions as to what should be done in first aid and at the various hospital stations. The important diseases such as shock, gas gangrene, tetanus, fractures, etc., etc., are all touched upon. Much useful instruction is also given on camp sanitation.

MEDICAL CLINICS.

The Medical Clinics of North America, September, 1917. Published bi-monthly by W. B. Saunders Company, Philadelphia and London. Philadelphia number, Vol. 1, No. 2. Price, \$10.00 per year.

We have much pleasure in recommending this number, as it contains an excellent selection of ably-prepared articles. The Philadelphia teachers in medicine have been favorably known for a long time, and the traditions of the past are not impaired by this issue of clinical lectures. These articles cannot but be of the greatest value to all who wish to keep themselves up-to-date.

DISEASES OF THE SKIN.

Their Pathology and Treatment. By Milton B. Hartzell, A.M., M.D., LL.D., Professor of Dermatology in the University of Pennsylvania. With 51 colored plates and 242 cuts in the text. Philadelphia and London: J. B. Lippincott Company, 1917. Price, \$7.00.

This work is based mainly on the author's experience in this field of medical work. It is intended to be a textbook for the student, a guide for the general practitioner, and a book of reference for the dermatologist. The book is one of 750 pages, and is very well illustrated and bound. So far, therefore, as the publishers' part is concerned the volume measures up to the best standard in the art of bookmaking. The author commences with some remarks on the anatomy, physiology, etiology, diagnosis and general therapeutics of the skin and its diseases. He then takes up the congestions. This is followed by a very full account of the diseases due to inflammations with exudations. Then follow inflammations due to vegetable and animal parasites. Diseases due to hæmorrhages, hypertrophies, atrophies, pigmentation, new growths, neuroses and affections of the appendages of the skin are given due attention. This arrangement is simple and scientific and gets rid of much of the

confused and complicated classifications too often found in works on dermatology. We have every confidence in affirming that this book will give satisfaction.

INFANTILE PARALYSIS.

The Treatment of Infantile Paralysis. By Robert W. Lovatt, M.D., Boston, John B. and Buckminster Brown, Professor of Orthopaedic Surgery, Harvard Medical School. Second edition revised and enlarged. With 123 illustrations. Philadelphia: P. Blakiston's Son and Company, 1012 Walnut Street. Price, \$1.75.

This book takes up the pathology and treatment of infantile paralysis. The author states that the disease is a general infection, the results being most marked on the nervous system, manifested by hæmorrhages, cellular exudate and edema. The meninges and brain are often considerably affected, so that the morbid changes are by no means confined to the anterior cornua. The posterior roots and ganglia are involved and this accounts for the pains in the disease. When the motor cells atrophy their place is taken by a gliosis. The symptomatology is set forth in a clear and satisfactory manner. The diagnosis and prognosis are also outlined. The most interesting portion of the book is the one devoted to treatment. Some value is given to the use of serum, especially as a preventative. The author also claims value for urotropin, both as a prophylactic and curative agent. The later treatment by massage, electricity, exercise, surgery, braces, etc., is well stated and will meet with approval.

MISCELLANEOUS

PRINCIPAL CAUSES OF DEATH IN THE UNITED STATES.

Washington, D.C., November 27, 1917.—According to a preliminary announcement with reference to mortality in 1916, issued by Director Sam. L. Rogers, of the Bureau of the Census, Department of Commerce, and compiled under the direction of Dr. William H. Davis, chief statistician for vital statistics, the "registration area," which contained approximately 70 per cent. of the population of the entire United States, reported for that year 1,001,921 deaths. Of these deaths nearly one-third were due to three causes—heart diseases, tuberculosis and pneumonia—and nearly another third were charged to the following nine causes: Bright's disease and nephritis, cancer, apoplexy, diarrhoea and enteritis, influenza, arterial diseases, diabetes, diphtheria and typhoid fever.

The deaths from heart diseases (organic diseases of the heart and endocarditis) in the registration area in 1916 numbered 114,171, or 159.4 per 100,000 population. The death rate from this cause shows a marked increase as compared with 1900 (the earliest year for which the annual mortality statistics were published), when it was only 123.1 per 100,000. The increase has not been continuous, however, the rate having fluctuated from year to year.

Tuberculosis in its various forms caused 101,396 deaths in 1916, of which 88,666 were due to tuberculosis of the lungs. Because of progress in the prevention and treatment of tuberculosis of all kinds, the decline in the tuberculosis death rate in recent years has been most pronounced, having fallen from 200.7 per 100,000 in 1904 to 151.6 in 1916, a decrease of nearly 30 per cent. Before 1904 the rate had fluctuated, starting at 201.9 in 1900. Even yet, however, tuberculosis causes more deaths annually than any other malady, except heart diseases, and about 37 per cent. more than all external causes—accidents, homicides and suicides—combined.

Pneumonia (including bronchopneumonia) was responsible for 98,334 deaths in the registration area in 1916, or 137.3 per 100,000. This rate, although lower than that for any year from 1900 to 1910, inclusive, with the single exception of 1908, is higher than that for any of the years from 1911 to 1915, inclusive. The lowest recorded rate for all forms of pneumonia was 127 per 100,000 in 1914. The mortality from this disease, like that from tuberculosis, has shown a marked decline since 1900, when it was 180.5 per 100,000. Its fluctuations from year to year, however, have been pronounced, whereas the decline in the rate for tuberculosis has been nearly continuous.

The only remaining death rate higher than 100 per 100,000 in 1916 was that for Bright's disease and acute nephritis, 105.2. The total number of deaths due to these maladies in 1916 was 75,316; of this number 69,395 were caused by Bright's disease and 5,921 by acute nephritis. The mortality rate from these two causes has increased from 89 per 100,000 in 1900, with some fluctuations from year to year.

Cancer and other malignant tumors caused 58,600 deaths in 1916. Of these, 22,480, or nearly 39 per cent., resulted from cancers of the stomach and liver. The death rate from cancer has risen from 63 per 100,000 in 1900 to 81.8 in 1916. The increase has been almost continuous, there having been but two years, 1906 and 1911, which showed a decline as compared with the year immediately preceding. It is possible that at least a part of this increase is due to more correct diagnosis and to greater care on the part of physicians in making reports to registration officials.

Apoplexy was the cause of 58,233 deaths, or 81.3 per 100,000. The

rate from this disease increased gradually, with occasional slight declines, from 1900 to 1912, and since 1913 the increase has been continuous.

Diarhœa and enteritis caused 56,763 deaths in 1916, or 79.3 per 100,000. The rate from these diseases has fallen somewhat in recent years, having been 90.2 in 1913, and is very much lower than the corresponding rate for 1900, which was 133.2. Nearly five-sixths of the total number of deaths charged to these causes in 1916 were of infants under two years of age.

Influenza was responsible for no fewer than 18,886 deaths in the registration area in 1916, or 26.4 per 100,000. The rate from this malady, which fluctuates very considerably from year to year, was higher in 1916 than in any preceding year since and including 1900, with the single exception of 1901, when it stood at 32.2.

Arterial diseases of various kinds—atheroma, aneurism, etc.—were the cause of 17,115 deaths in 1916, or 23.9 per 100,000. This rate, although somewhat lower than the corresponding ones for 1912 and 1913, is higher than those for 1914 and 1915. The rate for these causes increased continuously from 6.1 in 1900 to 25.6 in 1912.

Deaths from diabetes numbered 12,199, or 17 per 100,000. The rate from this disease has risen almost continuously from year to year since 1900, when it was 9.7.

No epidemic disease, with the exception of influenza, produced a death rate as high as even 15 per 100,000 in 1916. The fatal cases of diphtheria and croup—which are classed together in the statistics, but practically all of which are cases of diphtheria—numbered 19,367, or 14.5 per 100,000 population. The rate for diphtheria and croup in 1900 was 43.3, and the decline of nearly 67 per cent. from that year to 1916 is relatively greater than that shown by any other important cause of death. The rate fluctuated somewhat from 1900 to 1913, but has fallen continuously since the latter year.

The mortality rate from typhoid fever has shown a most remarkable and highly gratifying decline since 1900, having dropped from 35.9 per 100,000 in that year to 13.3 in 1916. The proportional decrease in the rate, amounting to 63 per cent., is a close second to that shown for diphtheria and croup. The efficacy of the antityphoid vaccine and of the many improvements in methods of sanitation has been demonstrated in a striking manner by this great reduction in the typhoid death rate.

The principal epidemic maladies of childhood—measles, whooping cough and scarlet fever—were together responsible for 17,586 deaths of both adults and children, or 24.6 per 100,000, in the registration area in 1916, the rates for the three diseases separately being 11.1, 10.2 and 3.3. As in 1913, measles caused a higher mortality than either of the other diseases, but in 1914 and 1915 whooping cough had first place. In every

year since and including 1910, as well as in several preceding years, measles has caused a greater number of deaths than scarlet fever. The rate for scarlet fever in 1916 was the lowest on record, while that for whooping cough, although considerably below the highest recorded rate for that disease, 15.8 in 1903, was far above the lowest, 6.5 in 1904.

Acute anterior poliomyelitis, commonly called infantile paralysis, caused 7,130 deaths in 1916, representing a rate of 10 per 100,000 population. This disease developed in epidemic form in that year, and the resultant mortality showed an enormous increase. The rate from infantile paralysis declined from 2.7 per 100,000 in 1910—the first year in which this malady was reported separately as a cause of death—to 1 per 100,000 in 1915, the decrease having been continuous between 1911 and 1912. The rate for 1916, however, was ten times as great as that for the preceding year.

Of the 26 States in the registration area in 1916, the five showing the highest rates reported 75 per cent. of all the deaths from this cause. These States, with their rates, were New Jersey, 41; New York, 32.8; Connecticut, 19.2; Massachusetts, 12.5; and Maryland, 8.1. The next highest five rates appear for Pennsylvania, 7.8; Rhode Island, 7; New Hampshire, 5.6; Montana, 5.2, and Michigan, 4.9.

The deaths resulting from accidents in 1916 numbered 60,071, corresponding to a rate of 83.9 per 100,000 population. This rate is considerably in excess of that for 1915 (76.3). The most marked increases appear for deaths due to railroad and to automobile accidents and for those resulting from the effects of heat.

The rate for deaths from railroad accidents in 1916 (11.3) exceeds the corresponding rates for 1914 and 1915 (10.7 and 9.9, respectively), but, with these exceptions, is the lowest one recorded since 1906, the first year for which deaths from this cause were reported separately.

Deaths from automobile accidents and injuries in 1916 totalled 5,193, or 7.3 per 100,000 population. As might be expected, in view of the enormous increase in the number of automobiles in use, the death rate due to these causes has advanced continuously since 1906—the first year for which they were reported separately—when it stood at 0.4 per 100,000 population.

Deaths resulting from street car accidents in 1916 numbered 1,775, or 2.5 per 100,000. This rate is the same as that for 1914, but shows an increase as compared with 1915. During the past 10 years, however, there has been a material falling off in the rate for this cause.

Machinery accidents caused 1,624 deaths in 1916, or 2.3 per 100,000 population, this rate being somewhat greater than those for the preceding two years—1.9 for 1915 and 2 for 1914.

The number of deaths from mine accidents and injuries in the registration area in 1916 was 2,119, corresponding to a rate of 3 per 100,000. The deaths from these accidents for the last three years show a material decline as compared with those for the preceding 10 years.

There were 2,056 deaths in 1916 from the effects of heat, the rate being 2.9 per 100,000 population. This is the highest rate shown for this cause in the last 15 years, with the exception of that for 1911, which was 5.3 per 100,000 population.

The number of suicides reported for 1916 was 10,162, or 14.2 per 100,000. This rate is the lowest for the past 10 years.

The total number of deaths due to the use of firearms in the registration area in 1916 was 8,240, corresponding to a rate of 11.5 per 100,000. Of these deaths, 3,386 were suicidal, 3,241 were homicidal, and 1,613 were accidental. The suicidal use of firearms shows a decline as compared with 1914, but increased as compared with 1910, 1911, 1912 and 1915, and the rate was the same as for 1913; and the frequency of accidental deaths due to their use shows a slight decline during recent years.

11,341 ON M. H. C. ROLLS.

On November 30th there were 11,341 returned soldiers on the rolls of the Military Hospitals Commission command, being an increase of 198 in a week's time. In the hospitals in the United Kingdom, on the week ending November 16th, there were 22,829, being an increase of 1,704 over the previous week.

Of the patients in Canada, 9,281 were ordinary convalescents, 1,368 were in sanatoria, and 692 were in various other hospitals.

On November 12th, the latest date on which statistics were compiled, there were 1,201 returned soldiers receiving courses in vocational re-education, due to the fact that their disabilities prevented them from returning to their old occupations.

OZONE CURES.

Gratifying success has attended the ozone-treatment department of the Queen Alexandra Hospital for Soldiers at Millbank. About eighteen months ago the treatment, which consists of allowing a stream of ozone to pour into the innermost crevices of old chronic wounds, was given an experimental trial. Now it has taken its place as one of the most valuable means at the surgeon's disposal in the hurrying on of the cure of deep-seated, intractable wounds. From an iron cylinder oxygen is conveyed to a glass chamber, in which it passes through a tube of silica connected with an electric battery. The oxygen is here converted into ozone,

and thence is poured out through a fine rubber tube inserted into the depths of the wound. Fifteen-minute treatments, which are quite painless, are the daily dose.

In one case a man had been shot through the shin bone just a year ago. The wound, partly healed, had been at a standstill for nine months, when the ozone treatment was begun. Now the cure is practically complete. Ninety per cent. of successes have been recorded in the cases treated in the past year, the only failures being men who could not stay for a complete course of ozone baths. The ozone acts directly as a germ killer, and its power on old wounds thoroughly impregnated with deep-seated germs has been so marked that it is now proposed to try the effect of ozone baths on newly infected wounds fresh from the battlefield. With this in view ozone plants are shortly to be given a trial in hospitals close to the firing line.

VITAL STATISTICS.

November was a bad month for pneumonia and broncho-pneumonia, the increase in the number of deaths in the city in November over the same month last year being thirty. In nearly all the principal causes of death there was an increase last month. The number was double that for October. There has been an increase in the pneumonia death rate per 100,000 from 126 in 1912, to 183 in November this year. Following is a comparative statement of deaths from 15 principal causes:

	Nov., '17.	Nov., '16.
Pneumonit and broncho-pneumonia	70	40
Cancer	46	41
Organic disease of the heart	40	25
Violence (including two suicides)	31	13
Tuberculosis (all forms)	26	21
Congenital debility, malformations, marasmus, etc.	24	17
Premature birth	16	14
Cerebral hæmorrhage, apoplexy, etc.	15	11
Acute nephritis and Bright's disease	15	11
Old age	11	6
Acute contagious disease	9	17
Bronchitis (acute and chronic)	6	2
Other respiratory disease	6	11
Diarhœa and enteritis (under 2)	6	12
Accidents of pregnancy and labor	6	1
Tuberculosis, including deaths of Toronto people in outside sanatoriums	36	43

TRADE COMMISSION ACTS ON SALVARSAN PATENT.

The Federal Trade Commission to-day entered orders for licenses to three firms to manufacture and sell the product heretofore known under the trade name of "Salvarsan", "606", "Arsenobenzol", "Arsaminol", patent rights which have been held by German subjects. The orders for licenses are subject to acceptance and agreement by the licensees to the stipulations made by the Commission. Upon such acceptance and agreement, licenses Nos. 1, 2, and 3 will be formally granted by Secretary L. L. Bracken, acting for the Commission.

Hereafter this important drug will be manufactured and sold under the name of "Arsphenamine".

The Trade Commission's action was taken under section 10 of the Trading with the Enemy Act, under direction of Commissioner Fort, upon recommendation of C. H. McDonald, Edward S. Rogers and Francis Phelps, in charge of granting such licenses. The Public Health Service has prepared rules and standards for the manufacture and testing of "Arsphenamine" and will supervise its manufacture, authority having been conferred on the Public Health Service by the Secretary of the Treasury, and the observance of the rules and standards become a condition of the license.

The three firms which will be hereby permitted to manufacture and sell "Arsphenamine" are Dermatological Research Laboratories, Philadelphia; ————— Laboratory, Inc., of New York, and Farbwerke Hoechst Company (Herman A. Metz Laboratory), of New York. The original patent for manufacture of what has heretofore been known as "Salvarsan", etc., was issued to Paul Ehrlich and Alfred Berthelm, German subjects, and assigned to Farbwerke Vormals Meister, Lucius and Bruning of Hoechst on the Main, Germany.

The supply of the drug now licensed to be made in America up to 1915 was almost exclusively obtained by importation from Germany. It is at present the only known specific for virulent blood poison. From the outbreak of the war importation became more difficult.

Before the war began the patented drug was sold at \$4 per dose, which is approximately \$3,500 per pound, and speculatively it has brought as high as \$35 per dose. While the price of the product is not fixed at this time by the Commission, the right to fix prices is retained, and a price of \$1 per dose to the army and navy, \$1.25 per dose for hospitals, and \$1.50 per dose for physicians, are the prices at which some of the licensees have stated that they intend to offer the licensed drug.

The enormous shortage of supply on this important product will immediately be relieved, and the article be in the hands of the Government, the hospitals and the medical profession cheaper than ever.