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Original Articles

RENAL CALCULI IN WOMEN *

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Stone in the kidney is a condition of mid-adult life, operations for renal calculi being rare before the age of ten or after sixty years, the average in 38 cases in the General Hospital, Toronto, being 39.4 years.

Women are slightly less liable than men—one to two—in this hospital. Renal calculi belong more especially to the age of stress and strain, often, however, with symptoms dating back to adolescence.

Either kidney may be affected. In 38 cases in the General Hospital 20 cases were of the right kidney, 16 of the left kidney, and 2 cases were bi-lateral. Though at first uni-lateral, sooner or later both kidneys are affected—50 per cent. in post-mortem returns being bi-lateral. At first, then, stone is uni-lateral, but later becomes bi-lateral.

Definition of a renal calculus: A renal calculus is an agglomeration (fusion) of crystals, held together by a cement substance, and not crystallizations of certain inorganic salts. Hence, one must trace the origin of the crystals in the urine, and also the origin of the cement substance. Let us consider the origin of the cement substance first.

The cement substance is an "irreversible colloid"—that is, one which does not re-dissolve when placed in a non-saturated solution. Hence the great insolubility of renal calculi.

This "irreversible colloid" is probably fibrinogen or fibrin, according to Schade, and, therefore, an inflammatory reaction is a necessary precursor of a calculus. This is not hard to believe,

* Read before the Academy of Medicine, Toronto, March, 1915.

when one realizes that a single large oxalate crystal, for example, may, in passing down from the kidney, cause all the typical signs of renal colic with hematuria.

The source of the crystalloids of the urine.—These crystalloids are:

I. Uric Acid and Urates.
II. Oxalates.
III. Phosphates.

The urine is essentially a solution of salts, its chemical and physical properties being those of a complex mixture. It has been shown by Nerst that two salts having the same "ion"—or less accurately the same base or acid in common—may mutually each decrease the other's solubility, whereas those salts which contain no base or acid in common may mutually increase each other's solubility.

I. The Source of the Uric Acid and Urates.

Uric acid, of which about .8 grams are excreted in twenty-four hours, does not exist as such in normal, freshly voided urine, hence one must explain the nature of the original solution and the cause of the subsequent separation.

Uric acid probably is excreted by the convoluted renal tubules as the bi-urate or acid urate M,HU the most stable of the compounds of uric acid and probably the most soluble.

The urinary secretion of birds is solid and in the form of the quadri-urates, which the late Sir William Roberts considered as the only physiological type of uric acid salt, whether in the blood or in the urine, but most recent chemical physiologists disagree with this statement. Again, in the new-born infant certain uratic concretions are found in the kidney tubules which approximate to the quadri-urates, but these are explained by the fact that the liquid excretion is not yet fully established, whilst in the human adult, since the mechanism of excretion has become more perfectly suited to the elimination of liquid urine, the uric acid will therefore tend to assume the more soluble form of the bi-urate.

Uric acid, then, is probably excreted by the convoluted renal tubules as the acid salt, the bi-urate. In the presence of acid urine this bi-urate salt is precipitated as the quadri-urate,

$$2M'HU + MH_2PO_4 = MHU, H_2U + M_2HPO_4.$$

But in the aqueous solution the quadri-urates are very unstable and decompose into uric acid and the bi-urates.

$$MHU, H_2U + AQ. = H_2U + MHU.$$

It has been observed, however, that the neutral salines in the urine and its pigments inhibit this decomposition.

Since the bi-urate is changed to the quadri-urate by the action of the acid urine, there is no more important fact to be remembered in the treatment of gravel and renal calculi than that uric acid cannot be deposited from alkaline urine, and that it cannot be deposited even prematurely in the renal passages even in urine that is neutral or feebly acid.

Hence uric acid gravel or calculi may be due to the following causes:

(1) Excessive acidity of the urine.
(2) Excessive concentration of the urine.
(3) Deficiency in neutral salines.

(1) *Excessive Acidity of the Urine.*

The diet is important. Meat, since it increases the excretion of the acid sodium phosphate, the normal cause of the acidity of the urine, should be avoided and vegetables and fruits substituted, since their acids are excreted as the carbonates in the urine and therefore reduce its acidity. Alkalies may also be given, e.g.; Potassium citrate is one of the most useful; also plenty of fluids, water, Vichy water, milk, buttermilk.

(2) *Excessive Concentration of the Urine.*

(*a*) Avoid too long intervals between food, since fasting increases both the acidity of the urine and its concentration. Since sleep is the equivalent of fasting, the measures of relief should be given towards the end of the day, e.g., at bedtime.

(*b*) Free evacuation of the bowels is important, for the following reasons: The tissue purins (C_5N_4) are probably synthetized from the proteins and carbohydrates of the food, and by oxidation of these purins, hypo-xanthin, xanthin, uric acid and urea are formed, in successive stages, the final oxidation of uric acid to urea taking place in the liver. If this last step fails uric acid may be in excess. Also, it is possible that there are certain intracellular ferments in the liver which cause destruction of the uric acid, i.e., uricolysis. Therefore, deficient action of the liver may leave the uric acid unchanged to urea.

(3) *Deficiency in Neutral Salines in the Urine.*

Since it has been shown that the neutral salines in the urine inhibit the change of the quadri-urates to the bi-urates and uric acid,

$$MHU,H_2U + aq. = MHU + H_2U.$$

it is important in some cases to increase the salines in the food. This may be done by—

(*a*) Taking more salt, NaCl, with the food.

(*b*) Increasing the meat in the diet, since meat contains the inorganic salts. For example, the frequency of stone in the children of the poor is thus accounted for, their diet consisting of bread, potatoes, oatmeal, and very little meat. So, in India, where rice is a staple food, stone is common. Again, stone is uncommon in sailors, since they consume plenty of salt.

II. Oxalates.

About one and a half grains are excreted in twenty-four hours. The oxalates are derived from: (*a*) The food; (*b*) gastric fermentation; (*c*) pancreatic disease. Most oxalates of the food are in the form of the insoluble calcium oxalate, e.g., in potatoes, beets, spinach, tea and coffee. The calcium oxalate is not absorbed as such, but probably is decomposed by the HCL of the gastric juice, so that two opposite conditions may arise, viz.:

(1) When there is hyperchlorhydria, i.e., excess of HCL. Then more of the oxalate will be dissolved, and therefore more will be absorbed.

(2) When achlorhydria or hypochlorhydria exists, then, with the HCL diminished, if the diet consist of much carbohydrate there may be abundant fermentation of the fermentable carbohydrate in the stomach or duodenum forming oxalic acid, which comes to the same thing as taking them in the food.

(3) When too much fat in the diet, fatty acids may be in excess and these, combining with oxalates, form soaps which may be thus absorbed.

However, when calcium oxalate crystals appear in a highly acid and highly colored urine long after the urine has been voided, it is said to result from decomposition of urea and is of no clinical importance.

Endogenous production of the oxalates is very small. Generally oxaluria is thought to be an indication of a low state of health.

Patients with oxaluria often suffer from all the symptoms of unilateral renal calculi to the extent even of hematuria, but postural treatment and X-ray are negative. Vesical irritation and frequent micturition may be prominent symptoms. In women the gynecologist has therefore to be on guard not to put down backaches and vesical irritations to uterine displacements or pelvic inflammation without first making a careful examination of the urine.

Oxalate calculi are the commonest calculi removed by operation. Before quantitative examinations were made the uric acid and urates were thought most common.

Renal calculi are seldom composed of one salt, but like a geological formation give a vivid picture of the various stresses and strains through which the individual has passed.

Treatment of Oxaluria.—Since the sources of the oxalates are: (*a*) the food; (*b*) hyperchlorhydria; (*c*) hypochlorhydria, plus gastric and duodenal carbohydrate fermentation, the treatment is indicated:

(1) Limit the amount of oxalate-containing food, e.g., rhubarb, tomatoes, and especially tea. The French medical men look upon oxaluria as the gravel of the poor. Since vegetables and tea contain much oxalates they should be limited, and a generous diet of milk, eggs and meat, except veal, allowed.

(2) Correct disorders of digestion:—

(*a*) Give plenty of hot water an hour before meals.

(*b*) Advise rest and a change of environment for the patient.

(*c*) Prescribe nitro-hydrochloric acid to relieve gastric and pancreatic insufficiency.

(*d*) Modify conditions of the urine so that it will not be favorable to the deposit of the oxalates. The acidity of the urine is to be increased by giving acid sodium phosphate, e.g., 10 grains, t.i.d., since this is the natural solvent of the oxalates.

(*e*) Salts of Mg. may be given, since magnesium forms a soluble double salt with the calcium.

Both the conditions (*d*) and (*e*) may be attained by a meat diet, since meat contains Mg. and increases the excretion of acid sodium phosphate in the urine. Magnesium may also be given as a mineral water, e.g., Kissingen or Hunyadi Janos, but not Apollinaris, since this contains lime.

Potassium citrate is a valuable drug. As a diuretic it dilutes the urine, and by combining with the calcium it forms a non-ionizable double salt, putting the calcium out of action (Martin).

The calcium oxalate calculus is usually single and, on account of its physical appearance, has been called a mulberry calculus. It is usually mixed with uric acid and dark brown or black from admixture of blood pigment. These calculi are seldom found embedded in the kidney substance unconnected with calyces or pelvis of the kidney. They are formed either in the calyces or the pelvis of the kidney.

III. Phosphates.

About two to six grams are excreted in twenty-four hours. The phosphates of Ca. and Mg. constitute about one-third of the total phosphates in the urine. They are derived chiefly from the food. They are only soluble in acid urine, for when the urine is faintly acid, neutral or alkaline they precipitate as " white gravel " the amorphous calcium magnesium phosphate. When the alkalinity is due to ammonia, as in the ammoniaical decomposition of urine, they form the ammonium magnesium phosphate, or triple phosphates. Phosphaturia is due to undissolved earthy phosphates of Ca. and Mg. which are derived largely from the food, and it is usually an indication only of diminished acidity of the urine. For example, after a meal rich in the salts of the vegetable acids or carbonates there may be a temporary phosphaturia.

In children, owing, for example, to intestinal inflammation, calcium is not eliminated by the bowel and may appear in the urine as calcium phosphate (stellar phosphates), without increase in the total phosphorus excretion. This may give rise to scalding urine and frequent micturition.

In nervous and neurotic patients, or those under a severe nervous strain, there may be phosphaturia owing to diminished formation of HCL, on account of a general depression of metabolism. These patients are often dyspeptics and suffer from hyperchlorhydria, constipation, dull aching in the loins, scalding urine, and frequent and unsatisfactory micturition.

In the severe cases, called phosphatic diabetes, besides pain in the back, there may be aching in the suprapubic region and cystitis may arise, but there is no decomposition of the urine. Such pronounced phosphaturia may be a prelude to bacteriuria, especially when accompanied by dyspepsia and intestinal derangement of long standing.

Treatment of Phosphaturia.—

(1) In children the diet should be poor in calcium salts and a partly meat diet substituted for the milk.

(2) In adults, in depressed metabolism, give the patients the mineral acid they cannot make, e.g., nitro-hydrochloric acid dil.

(3) Suitable diet, change of surroundings, relief from worry. When hyperchlorhydria is present, then administer fruits and vegetables more freely in the diet.

(4) When triple phosphates are present in the urine relieve the cystitis.

Calculi of the earthy phosphates are greyish white in color,

hard with irregular or crystalline surface, and are found, as stated, in neutral or slightly alkaline urine.

It is an interesting point of contrast, as Langdon Brown remarks, that neurasthenics tend to oxaluria when they have very acid urine, and to phosphaturia when the urine is not very acid.

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PROSTATECTOMY *

By William Gunn, M.D., Clinton, Ont.

The fact that members of this Association are expected to take a share in contributing to the programmes is my excuse for this paper, rather than having something illuminating to offer.

The paper refers to some points that impressed me in connection with my own experience in prostatectomies. It contains a brief report of some cases having a bearing on the prognosis. During the last six months we had four suprapubic prostatectomies. By a coincidence, each of these patients was in his 79th year. Four cases are too few from which to form conclusions, but when the age, the complications, and good final results are considered, it must be admitted that the operation is one that may be recommended with considerable assurance.

Case 1: J. McI., 79th year—Referred by Dr. Ross, of Seaforth, who also assisted. Had prostatic troubles for several years. Operation, September 1st, 1914. Suprapubic in one stage. Bladder at operation much distended, as it was impossible to pass the catheter.

Result—Dr. Ross in report says patient has gained twenty pounds in weight. No trouble in voiding or retaining urine; can retain urine all night if he chooses to do so. Feels strong and attends to his duties as rural mail carrier.

Case 2.: D. G., 79th year—Referred by Dr. Case, Dungannon. Entered on catheter life seven or eight years ago. For last two weeks was unable to pass catheter. Two days before coming to Clinton Hospital, bladder was tapped above pubes but refilled. Operation, Oct. 12th, 1914. Bladder distended to umbilicus.

* Read at the Huron Medical Association, March 10th, 1915.

Local anesthesia, bladder opened above pubes, drained and treated for ten days, when prostate was removed through former opening under ether anesthesia. The report of Dr. Case (and patient reported as well), says, "No trouble voiding or retaining urine. Can work with comfort. Voids urine without difficulty twice during the night.

Case 3: Mr. McG., 79th year.—Referred through courtesy of Dr. Burrows of Seaforth, who also assisted. Had bladder trouble for last five or six years. For last year and six months has had a very severe form of cystitis. The presence of small calculi in bladder caused great pain. Catheter used every few hours for last year and bladder washed. Morphine required several times daily. Heart and arteries very fair. Operation, Jan. 13th, 1915. Prostate, and small stones, some of which were imbedded in the gland, removed in one stage. Dr. Burrows' report: "Gaining well in strength and weight. Enjoys life comfortably. Good appetite. No discomfort voiding or retaining urine. Urinates every three or four hours during day and once or twice during the night."

Case 4: A. F., 79th year—Referred by Dr. Anderson of Ailsa Craig, who also assisted. History and symptoms like those of last case. Shortly before operation had symptoms of prostatic abscess. Passed phosphatic sand constantly. Pain excessive, requiring morphine. Differed from last case in that he was a man of massive frame and deep pelvis. Operation in one stage, Feb. 18th. 1915. Much phosphatic debris and gland removed. Result: Wound nearly healed. Patient sits up most of the time, feels well and eats heartily. There is every reason for believing that the final result in this case will be equally as good as in the others.

My first prostatectomy was by the suprapubic route, and the next five by the perineal route and the vertical incision.

These cases all lived, and all but one had good functional results. The latter case relates to a man who occupied a public position for many years and was well known in this locality. The result in his case caused some prostatic sufferers to hesitate, or induced them to go elsewhere for relief. It is therefore but fair that the facts of this case with "impaired function" be stated.

Case With Impaired Function.

Mr. S., age about 60.—About ten years ago was operated on at a large hospital by a well known and competent surgeon. The operation, as I understand it, consisted in opening the bladder above the pubis and cauterizing a wedge-shaped portion of each

lobe. Relief followed, but stones soon formed, and in about six months patient was suffering agonies. This was followed by urinary obstruction, distension, rupture of the bladder, extravasation, and escape of urine at the old scar. Such was the condition when I first saw the case, with Dr. Taylor of Goderich. The bladder was opened by the vertical perineal incision, and stones and gland removed. Owing to the fact that the bladder would only hold an ounce or two of urine, the perineal wound never healed. This condition might be accounted for by contractions after extravasation, the possible effects of the cautery extending beyond the gland, the erosion caused by sharp stones, and the double operation. The patient, however, feels well, enjoys the best of health otherwise, and attends to his ordinary duties. He keeps a soft catheter in the small perineal opening, one end of which empties into a urinal, that is worn. In cases where a permanent drain is indicated, the plan is entirely suitable.

This is the only instance in which we have had a faulty result, functionally. There are, at least, a dozen cases in the counties of Huron and Bruce, that many of you know about, in which there is no trouble either in retaining or voiding the urine.

My first operation has a historical interest, and I shall ask your forbearance while I give a brief report of it also.

My First Operation.

This occurred about twenty-four years ago, and was, I believe, one of the first suprapubic prostatectomies in the province. A brief history will show how I stumbled, so to speak, on the operation. It will also show how the operation might have been accidentally discovered in the first place.

Late one night I was called by Dr. McDiarmid of Hensall, to see a man, aged about seventy, who was in agonies of pain from retention of the urine. Not being able to pass a catheter, and no trocar or aspirator being at all convenient, the bladder was opened above the pubes. The prostate gland was found enlarged to an extreme degree. While the patient was still under the anesthetic it was decided to remove a wedge from each lobe, in order to prevent a recurrence of the trouble. The instruments at our disposal were a knife, scissors, and a double tenaculum; but even these were soon to be laid aside for the finger. An antero-posterior incision was made in the right lobe and the capsule pushed aside to make room for the wedge. It was soon realized that it was no easy matter to cut out a symmetrically-shaped wedge. At the same time it was discovered that the capsule separated easily

from the gland substance by using the finger. It was therefore decided to remove all of the gland that could be taken away, rather than to leave it in a mutilated and shapeless form; and so the whole gland, or nearly all of it, with the prostatic urethra came away. I did my best to save the urethra and was much disturbed for some time because of it. A guarded prognosis was given as to life, and as to function the prognosis was absolutely bad. I even tried to figure out the line of defence in case of an action for damages.

The man recovered and lived in comfort till a few months ago. It must have occurred to many surgeons to remove a wedge from the lobes and in trying to do so the fact that the capsule could be easily separated could hardly have escaped them.

The Operation.

The essentials to a successful suprapubic prostatectomy are eyes in the finger tips, judgment, caution, and reasonable speed. It goes without saying that the results in prostatectomies should improve with experience. As the cases needing such operation are often up in years and run down in health, it is of importance to conserve their energy at every stage of the operation, viz.: (1) before the prostate is reached, (2) in its enucleation, (3) in the after-treatment.

Before the Prostate is Reached.

This stage would include a consideration of the operation in two steps as advocated by some surgeons in nearly every instance. Time forbids a lengthy discussion of this phase of the subject. In my opinion two steps or stages are not required in more than one-fourth of the cases.

In many instances the anoci-associations, mental and physical, connected with two stages, more than offset the good that may otherwise come from them.

It is in deciding between a one-stage and a two-stage operation that judgment plays an important role. Some preparatory treatment, however, is indicated in nearly every case for prostatectomy.

The length of the incision must of necessity vary according to the patient's build. It is of first importance that the tissues adjacent to the bladder be disturbed as little as possible. Damage in this regard may be caused by the clumsy use of retractors tearing tissues apart, and by the operator disturbing unnecessarily the structures in the pubic space below the bladder wall, or in removing fat over the bladder before opening it; all of which tend

to shock, sepsis, and prolonged healing. The beginner is prone to the mistake of opening the bladder too near to the pubis for fear of wounding the peritoneum.

The enucleation of the gland must next be considered. For this almost the sole instrument that I use is a knife of my own design. The knife has a slender straight handle about eight inches in length, with a stout short sickle-shaped blade, having a cutting edge of from one-quarter to one-third of an inch. Guided by the fingers, the blade is plunged into the right lobe towards its upper or back part. Into the opening thus made the finger is inserted and enucleation continued in the lines of least resistance, above, below, backwards and forwards. The object aimed at all the while is to save every portion of the capsule and interlobular septa and to remove the gland substance only. When resistance is met, brute force is not used, but the little knife comes to the rescue. It is passed into the opening in the gland and a short cut made at the seat of obstruction, the direction of the cut being, as a rule, inwards and upwards or towards the abdominal wound. The whole gland may be removed from this opening. I frequently open on the left lobe as well, from which I work with the left hand. The vessels in the gland substance are not large and there is not much bleeding if the operator hugs the gland, as it were, and keeps the capsule to the outside of the finger. When enucleation was carried out in this way, we never had bleeding that called for packing or other measures, besides the parts fall naturally into position after the gland is removed.

As the operator gains experience, he will often dispense with his own fingers or the fingers of an assistant in the rectum and also the use of a catheter in the bladder as a guide.

A clumsy or rough assistant may cause distress and even much damage to the rectal wall. This will be manifest in the after-treatment of the patient.

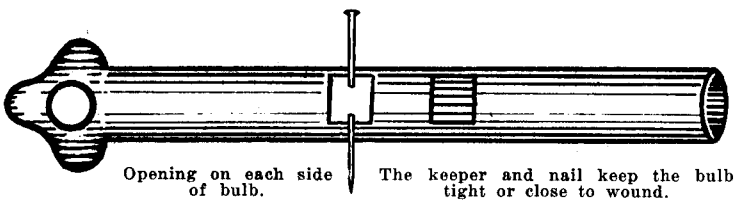
The Sutures. Two only are required. The upper passes through the recti and takes a deep bite of the peritoneal fat, care being taken to avoid the peritoneum itself. The lower one goes through the recti just above the pubes and takes a bite of the tissues below the bladder wall. These are tied loosely and must be removed early if observed to cut. Sloughs are allowed to separate naturally. The patient chooses any position that is most comfortable and is encouraged to sit up for a time (not long enough to tire), on the second or third day. Water is given freely. Urotropin and other medications are at times given with benefit.

A sound or catheter may need to be passed occasionally during the latter stages of healing; but gentleness and great care as to sepsis must be taken for fear of starting an orchitis.

The Drainage Tube.

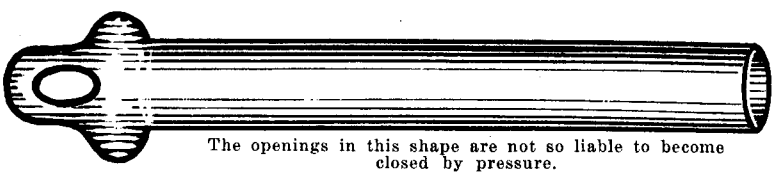
This must be a good size, to facilitate the washing away of clots, and may be required for the first day or two. The tube must be short enough so that it will not press on the neck of the bladder. The only drainage tube that is of practical value in saving the dressings is made after the accompanying drawings. The tube that is on the market with a lug on each side is of little use. In order to plug the opening in the bladder, the bulb requires to be fairly firm as well as stretchable. I am having some tubes made of different sizes and shapes which it is hoped will serve the purpose.

These and similar shaped tubes are the only ones of service to protect dressings. By stretching with a round stick inside they can be reduced to the size of an ordinary catheter. When in position the bulb resumes its form and acts as a plug or cork.



Opening on each side of bulb.

The keeper and nail keep the bulb tight or close to wound.



The openings in this shape are not so liable to become closed by pressure.

MEDICAL NOTES ON ENGLAND AT WAR

By Sir William Osler.

Frost-Bites and Cold-Bites.

The outstanding feature of the recent admissions to the hospitals from the front has been frost-bite, a very unusual condition in British practice. The cold has been severe in North-west France and Belgium; the men have had long exposures in the trenches, from the effects of which thousands are suffering with sore feet. To wear boots and stockings continually for a week or ten days soaked in cold mud or water and mud, passing long hours in the upright position, naturally causes vasomotor paresis with swelling, and the prolonged stasis has led in not a few cases to necrosis. The cases varied extremely. In the first place there may be nothing more than aggravated chilblain, with the stages of protracted venous stasis, edema, bullae and superficial necrosis. A lad at the Canadian Hospital, Beechborough Park, had slight tenderness of his feet which had only been swollen and blue, but over the backs of both hands and knuckles were areas of superficial necrosis. He had been in the trenches for days, his hands had been swollen, particularly the backs, and he was completely incapacitated.

Secondly, there have been cases of genuine frost-bite; the temperature was protractedly low, and widespread necrosis followed; but several men with necrosis of the toes assured me that the water in which they had stood had not been frozen. In the sequel of events no doubt all of theso lacked the preliminary complete anemia of ordinary frost-bite. Gangrene never follows this stage directly, but the succeeding condition of stasis in veins and capillaries. A very common form has been great swelling, with lividity, blackness of the toes, with a slight necrosis of the superficial skin of the pads, or shedding of the nails. As in Raynaud's disease, the final condition is often very much better than one could have anticipated from the appearance of the feet at first. A man at Paignton had a curious distribution of the necrosis, confined to the sole of one foot.

Thirdly, with these conditions, with which all are familiar, there have been an unusually large number of cases to which the term "cold-bite" is more applicable. The men return with swollen

feet, vasomotor paresis, not necessarily with much pain but with disability due more to the swelling, and sometimes to the great stiffness of the toes. The desquamation of the skin and hemorrhages beneath the nails indicated that this was a sequel of much more serious condition. More unusual cases have been without any obvious change, the feet looking normal but with an extreme degree of cutaneous hyperesthesia, so that the slightest touch caused wincing and the feet had to be constantly protected with a cradle. Sometimes the pain was spontaneous, or it would come on at night; but in many instances it was brought out only on attempting to stand, or when the patient was touched, or the foot moved. In several cases it was a "stocking" hyperesthesia reaching just above the ankle. One patient in the convalescent home at Blenheim Palace had evidently suffered intensely, and was badly knocked out in his nervous system. Others have shown marked neurasthenic or even hysteric manifestations. The truth is, the trenches have been a veritable hell, and it is not surprising that a good many of the men show signs of severe nervous shock.

The Low Mortality Among the Wounded.

It is intensely interesting to see a set of severe cases some weeks after their admission. Extraordinary results follow even in the severest type of cases. At the American Hospital, patients whom I never expected to see alive were up and about and doing remarkably at the end of a month. A man with the surface of the trochanters bare and the lower end of his thigh infected severely had the wound cleaned, and a nice amputation made, with a good stump. A man with a part of the sacrum blown away and the rectum exposed from behind had gained 10 or 12 pounds in weight, the wound was healing rapidly and the fecal fistula had healed. One is immensely impressed with the good results of treatment and the very low rate of mortality. At the Base Hospital here, among more than 3,000 cases there have been about a dozen deaths. At the Cambridge Hospital among the first 3,500 patients admitted only fifteen died—a mortality of 0.4 per cent. At the American Hospital, Paignton, there has been only one death among 700 patients—a mortality of 0.14 per cent. It has been very satisfactory to note the absence of tetanus in the recent admissions and that cases of gas gangrene have been fewer.

An Aneurism Case.

I mentioned in my first letter the case of a Belgian at the Beechborough Canadian Hospital in whom the bullet passed

through the mouth under the jaw, beneath the skin of the neck, and lodged below the left clavicle; the cervical triangle was filled with a pulsating mass. When first seen it looked like an ordinary traumatic aneurism, and I felt sure that an artery must have been wounded; but after Dr. Armour had removed the bullet and relieved the tension, the pulsation ceased, and the second time I saw the patient there was nothing but the firm indurated swelling above the clavicle with disability of the arm from pressure on the nerves. Then he began to bleed freely from the throat and from the wound, and it was quite evident that an artery had been opened. Dr. Armour operated and found that the bullet had nicked the subclavian artery, which he tied successfully, and the man has made a complete recovery.

Cerebrospinal Fever.

Medically, the most disturbing incident has been the outbreak in various camps of cerebrospinal fever, a rare disease in this country. There had not been a very bad epidemic during the nineteenth century, but in 1905-1906 Belfast and Glasgow suffered severely, and there has been an increase in the sporadic cases during the past three years. The first Canadian contingent apparently brought the disease with them, as there were four cases at Valcartier and three cases on the voyage. There was no additional case until recently, and they have had in all about twenty-five or twenty-six, with eleven or twelve deaths. I went last week to the camp at Salisbury to see the cases. The weather has been appalling, much wind and more rain, and everywhere the mud has been ankle-deep. At the General Hospital, Netheravon, under the care of Dr. Murray Maclaren of St. John and Dr. F. G. Finley of Montreal, there were many cases of bronchitis, bronchopneumonia and rheumatism. Most of the men, however, looked very fit and seemed to have stood the hardships very well. A new hospital had just been opened for the cerebrospinal fever cases, of which there were eleven under treatment. I found a well-equipped laboratory and a full staff of workers under Dr. Arkwright of the Lister Institute, who has done much work on the meningococcus. Dr. Ellis, who has been at the Rockefeller Hospital, New York, for the past four years and who is an expert in all methods of intrathecal treatment, was in charge of the clinical work. They had only just begun a systematic investigation of the contacts, and when I left they had not detected any carrier. It is not likely that the epidemic will prove serious. It is alarming, though, as

there is another infected camp not far away in the English troops, and in the city of Salisbury itself there have been ten cases and seven deaths. I was afraid at first that the Canadians were responsible for bringing the infection, but it is evident that, as is usually the case, sporadic outbreaks are occurring in different parts. There have been a few cases at Haslar; I saw two cases at the Millbank Hospital, both from the Eastern counties, and on the thirtieth I visited the Shorncliffe Camp, where they have had eight deaths, and a few cases remained in hospital. It is interesting that this is the only place during the nineteenth century that the disease appeared among soldiers.

Typhoid Fever.

There is extraordinarily little typhoid fever among the recruits or in the patients in the hospitals from the front. Sir Frederick Treves in the *Times* of to-day gives the returns of the British troops in the present campaign—421 cases, 305 in men who were not inoculated. In the 421 cases there have been thirty-five deaths; of these thirty-four were men who had not been inoculated within two years; only one death occurred among patients who were inoculated and that man had been inoculated only once. The "Anti's" are causing a great deal of trouble in distributing their pernicious literature among the soldiers. It is a thousand pities the government does not take its courage into both hands and order compulsory inoculation. It is evidently going to be a "long, long way to Tipperary" in this war, and should typhoid fever within the next eighteen months play the same rôle as it did in the South African War, the bacillus of Eberth might very well be one of the determining factors in deciding on which side victory will fall.

Everywhere preparations are in progress for the spring and summer campaign. New hospitals are being built to meet the heavy demand when, for the first time in its history, this country will have more than 1,500,000 in the fighting line. We have had orders for another 500 beds in Oxford, which will be arranged for in barracks in the Radcliffe Observatory Field close to the Radcliffe Infirmary. Waldorf Astor, Jr., has given his beautiful place at Clevedon on the Thames as a Canadian Base Hospital, and between the house and the barracks erected on the grounds there will be 500 beds.

Death of Professor Van Gehuchten.

A tragic event, of which you have already heard, was the death of Professor Van Gehuchten. He had settled very happily

at Cambridge working at the Research Laboratory with Dr. Strangeways, and we were so glad to be able to put him on the Rockefeller list. He died suddenly after an operation for volvulus. How the poor fellow and his family suffered at the Louvain tragedy is told in the *British Medical Journal*, January 16th.

ONTARIO WORKMEN'S COMPENSATION

Medical Attention.

In regard to medical attention it is stated that the question is frequently asked, what should employers do, or what should they instruct their foremen to do, in regard to medical attention when an accident happens to an employee. The Workmen's Compensation Act, it is pointed out, does not deal at all with the question of medical attendance or medical fees therefor, except in fatal cases where there are no dependents. It is pointed out, however, that the Board is not indifferent to this aspect of the matter, and that, apart from the humanitarian side of the question, it is not in the interest of the Board or of employers that payment of compensation should be prolonged by lack of necessary medical or surgical attention An injured employee should be taken to the nearest doctor or hospital as quickly as possible, and the Board hopes that any co-operative or other arrangement now existing for such service will be continued There is nothing in the Act to prevent arrangements for such hospital or medical service. Unless there is some co-operative arrangement for medical aid, the injured workman must of necessity pay his own medical expenses. It is pointed out, however, that in serious cases there is the certainty, if reports are promptly made, that compensation will be made without delay, and money will thus be available which will enable injured workmen to pay their medical or hospital fees, which it is believed they will generally be found willing to do, but should any workman not be willing to pay what is reasonable, the power given to the Board to permit attachment of the compensation may be invoked. It is suggested that mutual co-operation and assistance among employers, employees and physicians in all these matters will be to the advantage of all, as well as a great assistance in the work of the Board.

Reporting of Accidents.

The Board, it is stated, will very much appreciate promptness and care on the part of both employers and workmen in making reports of accidents, and upon this will depend in large measure

the quick handling of claims. An ample supply of forms will be sent to employers upon request. The employer is required by Section 99 of the Act to report to the Board, within three days, every accident which disables a workman from earning full wages. If the accident is so slight that the disability will be less than seven days (and therefore not affording the right to compensation) the short form of notice (Form 5) or a letter or other writing to like effect, will be sufficient; but where the disability will continue for seven days or more, Form 7 is required. If this form can be filled up and sent within the three days, the short form may be dispensed with, but if not, it is stated that Form 5 should be sent within the three days, and Form 7 should follow as soon as possible. Where it is doubtful if the disability will last seven days, it is suggested that it will be better to use Form 5 and await results, and if it is found that the disability does last seven days, Form 7 should be sent on the eighth day after the accident. In every case where any notice or report of an accident has been given to the Board, no matter what the length of the disability, the employer should, as soon as the workman has returned or is able to return to work, report that fact immediately to the Board, and for this purpose Form 9 may be used. Form No. 6, it is stated, is to be filled out and sent to the Board by the workman if he is disabled for at least seven days from earning full wages. Report Form No. 8 is to be made by the doctor who attended the injured workman. In this connection the Board draws attention to the desirability of physicians and surgeons throughout the Province co-operating with the Board; that while the law does not permit the Board to pay for medical attention to injured workmen it may be pointed out that the liberal compensation now payable and the fact that it is payable in a vastly larger number of cases than where damages could formerly have been recovered, will render this class of patients, on the whole, better able than heretofore to meet the doctor's reasonable charges. —*The Labour Gazette.*

THE SEVENTH PAN-AMERICAN CONGRESS

will meet in San Francisco, June 17th-21st, inclusive. It assembles pursuant to invitation of the President of the United States issued in accordance with an Act of Congress approved March 3rd, 1915.

The countries and colonies embraced in the Congress are the Argentine Republic, Bolivia, Brazil, Canada, Colombia, Cuba,

Chile, Costa Rica, El Salvador, Ecuador, Guatamala, Honduras, Haiti, Hawaii, Mexico, Martinique, Nicaragua, Panama, Paraguay, Peru, Santo Domingo, United States, Uruguay, Venezuela, British Guiana, Dutch Guiana, French Guiana, Jamaica, Barbadoes, St. Thomas and St. Vincent. The organization of the Congress is perfected in these countries and the majority of them have signified their intention to be represented by duly accredited delegates.

The Congress will meet in seven sections, viz.: (1) Medicine; (2) Surgery; (3) Obstetrics and Gynecology; (4) Anatomy; Physiology, Pathology and Bacteriology; (5) Tropical Medicine and General Sanitation; (6) Laryngology, Rhinology and Otology; (7) Medical Literature.

All members of the organized medical profession of the constituent countries are eligible and are invited to become members. The membership fee is $5.00 and entitles the holder to a complete set of the transactions. Advance registrations are solicited and should be sent with membership fee to the Treasurer, Dr. Henry P. Newman, Timken Building, San Diego, California.

The general railroad rate of one fare for the round trip, good for three months, made on account of the Panama-Pacific Exposition at San Francisco, and the California Exposition at San Diego is available for the Pan-American Medical Congress.

The Palace Hotel will be headquarters.

The first Pan-American Medical Congress was most successfully held in the United States in 1893. Five intervening Congresses have been held in Latin American countries. It now devolves upon the medical profession of the United States to make this, the seventh, the most successful in the series. Charles A. L. Reed, President Union Central Building, Cincinnati; Harry M. Sherman, Chairman Committee of Arrangements, 350 Post St., San Francisco; Ramon Guiteras, Secretary General, 80 Madison Avenue, New York City; Philip Mills Jones, Special Committee on Hotels, 135 Stockton Street, San Francisco.

Reviews

A Text-Book of Medical Jurisprudence and Toxicology. By JOHN GLAISTER, M.D., D.P.H. (Camb.), F. R. S. E., Professor of Forensic Medicine in the University of Glasgow, &c., &c. Third edition, with 130 illustrations and one colored plate. Price, fifteen shillings net. Edinburgh, E. & S. Livingstone.

All medical men who are coroners, those who are not, lawyers and students will welcome this new edition of an excellent text-book. It is very complete and one of the most useful books we know of upon this subject. There is a short sketch of the General Medical Council, its duties and statutory powers, as well as its penal resolutions. The work as a whole has been brought up to present-day requirements and advancements. As a work upon medical jurisprudence and toxicology, it may be heartily recommended to all.

The General Index to the last ten volumes of the Annals of Surgery has just been prepared.

This book has been especially prepared for the convenience of readers of *Annals of Surgery*, and we are supplying them with copies for $1.00 each. This amount merely represents just about what it costs us to prepare, print and bind it.

If it proves of any service to you in referring to your volumes of the *Annals* we shall be very glad. Philadelphia: J. B. Lippincott Company.

Dominion Medical Monthly

And Ontario Medical Journal

EDITED BY

Medicine: Graham Chambers, R. J. Dwyer, Goldwin Howland, Geo. W. Ross, Wm. D. Young.

Surgery: Walter McKeown, Herbert A. Bruce, W. J. O. Malloch, Wallace A. Scott, George Ewart Wilson.

Obstetrics: Arthur C. Hendrick.

Pathology and Public Health: John A. Amyot, Chas. J. C. O. Hastings, O. R. Mabee, Geo. Nasmyth.

Physiologic Therapeutics: J. Harvey Todd.

Psychiatry: Ernest Jones, W. C. Herrman.

Ophthalmology: D. N. Maclennan, W. H. Lowry.

Rhinology, Laryngology and Otology: Geoffrey Boyd, Gilbert Royce.

Gynecology: F. W. Marlow, W. B. Hendry.

Genito-Urinary Surgery: T. B. Richardson, W. Warner Jones.

Anesthetics: Samuel Johnston.

GEORGE ELLIOTT, MANAGING EDITOR.

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COMMENT FROM MONTH TO MONTH

Pneumonia, Tonsillitis, Rheumatism, Organic Heart Disease offer a great field for endeavor on the part of the medical officer of health. Smallpox has been stayed in its ravages. Diphtheria vies with smallpox in being one of the lesser evils. Typhoid fever is well understood and, consequently, easily kept within bounds. Tuberculosis is being mastered. During 1913 there were 2,076 deaths from pneumonia in Ontario. It is likely pretty much the same in every province. It is not yet a notifiable disease, but it is a germ disease, and its great toll of human life cannot much longer be permitted to pass unchallenged. The intimate relationship of tonsillitis, rheumatism, and organic heart disease calls for serious consideration of tonsillitis, necessarily as the initial step in the prevention of this triad. Organic heart disease heads the list in "The Highest Causes of Death," in Ontario—2,829 deaths in 1913.

It is not an unusual occurrence to see tonsillitis, or so-called "sore throats," running through almost an entire family. Iso-

lation and quarantine of every case of tonsillitis should be compulsory at an early date.

In addition to the recognized communicable diseases and infantile mortality, medical officers of health should begin to take into consideration preventive measures looking towards the lessening of tonsillitis, rheumatism, organic heart disease and pneumonia, as well as cancer. Whilst the good work inaugurated against smallpox, diphtheria, typhoid fever, tuberculosis, and infant mortality will continue to be prosecuted with the utmost vigor, the enormous loss of life through other sources must not be any longer neglected.

Gonorrhea, syphilis, and chancroid are coming, but the public are scarcely ready for this step, whereas they would readily acquiesce in preventive measures involving the others.

"FROZEN FEET" IN THE SOLDIER

A communication based upon a large number of observations by himself and others has been made by an eminent French surgeon to the Academy of Medicine, Paris, on so-called "frozen" feet occurring among the soldiers in the trenches. It has been found that actual cold has been far the least important factor. They have occurred in conditions where the temperature has never fallen to freezing point. Still, these false "frostbites" have all the appearance of true ones, complete dropping off of the toes having taken place in some cases. They are true troubles of local nutrition through the constriction of the feet by the footgear, and were seen mostly in the French soldiers in consequence of the bandages used by them as puttees. The condition was aggravated by the dampness which caused softening of the tissues and shrinking of the bandages. Combined with this were the inadequately watertight boots, often too tightly laced. The Russian and German troops use waterproof and sufficiently loose footwear, and have thus been enabled to control these epidemics. Prevention of frostbites can be carried out by the suppression of bandages, loosening the laces, the application of fatty substances to the entire foot and leg—oiled paper or greased socks—whilst the soldier is in the wet trenches. In some cases removal of the boots twice a day acted well as a preventive.

Editorial Notes

RELIEF BELGIAN MEDICAL AND PHARMACY PROFESSORS

Amount not previously acknowledged:—Manitoba Executive Committee, fourth remittance, 372.50; Dr. Paul Scott, $25; Dr. J. E. Elliott, $11; Dr. Large, $5; Dr. Grant, $3; Dr. J. S. Burris, $10; Dr. H. L. Burris, $5; Dr. T. Kearney, $2; Dr. J. H. Clements, $3; Dr. D. Macklin, $10; Dr. Ford, $10; Dr. Rutherford, $10; Dr. Deacon, $10; Dr. Quinlin, $10; Dr. Smith, $10; Dr. Monteith, $10; Dr. Fraser, $10; Dr. Gemmell, $10; Drs. Rankin & Cannon, $10; Drs. J. A. & L. Robertson, $10; Dr. Forester, $10; Dr. Maynard, $5; Dr. Gregory, $2; Dr. Nasmyth, $2; Dr. Allen, $2; Dr. Easson, $2; Dr. McKenzie, $10; Dr. Armstrong, $10; Dr. Hodge, $10; Dr. Burley, $10; Mr. Muir, $2; Dr. Smith, $10; Dr. Hurlburt, $5; Dr. Smith, $10; Dr. Fraleigh, $10; Dr. Stanley, $10; Dr. Brown, $10; Dr. Knox, $10; Dr. Tye, $10; Dr. Campbell, $10; Dr. King Smith, $6; Mr. J. B. Dimmick, $10; Mrs. J. B. Dimmick, $10; Dr. Galloway, $3; Dr. C. L. Starr, $10; Dr. J. Livingstone, $1; Dr. E. Boyd, $5; Dr. W. E. Gallie, $5; Dr. Alan Brown, $5; Dr. G. A. Campbell, $5; Dr. Roy Smith, $1; Dr. Allan Baines, $10; Dr. D. McGillivray, $5; Dr. Alan Canfield, $5; Dr. A. C. Bennett, $2; Dr. B. Hannah, $5; Dr. Joe Graham, $5; Medical Men of Guelph, $60; Vancouver Doctors and Druggists, $360; Dr. Hubbard, $10; Dr. W. F. Clarke, $5; Dr. F. N. G. Starr, $25; Dr. E. A. Robertson, $2; Dr. J. T. Gilmour, $15; Dr. C. H. Gilmour, $10; Dr. W. J. Harrington, $5; Dr. Deacon, $1; Dr. R. B. Cuthbertson, $5; Dr. W. Rogers, $5; Dr. Bottomley, $5; Dr. Wright, $5; Dr. Heaslip, $2; Dr. Robson, $2; College of Physicians and Surgeons, Manitoba, $1,000; College of Physicians and Surgeons, Victoria, B.C., $263; from Nova Scotia, per Dr. Lindsay, $487; Dr. Park, $10; Dr. Hall, $10.

THE SECRET OF GERMAN HATE

What has been the state of mind of the German people which gave birth to the "Hymn of Hate"? Here was a people ordinarily painstaking, slow, plodding, not in the least funny, suddenly bursting forth into furious rage against the British. Was it to Kaiser, Kultur, Nietzsche, the British Navy? No. It is

to the bread and the resulting dyspepsia. German hatred grows by and is fed on "V" bread. Now made up of 80 per cent. wheat flour, 10 per cent. rye, and 10 per cent. potato meal, the result is that there is too much starch with the potato meal added. Millions of dyspeptics who are irritable, despondent, naturally become grouchy. They cannot help it. What will it do in the present isolated economy of the German nation—do to Germany itself? The soldiers, living on the fat of the land of France and Belgium, do not evidence the same bitter hatred as the German people. "Their livers are as yet unwrung." They do not get potato bread. Thus is Germany's case diagnosed. Her own treatment for her people may help materially to effect a cure.

DANGERS OF THE WRIST WATCH IN WARFARE

Considerable use of the wrist watch is to be found in all the armies of the different belligerents. It is generally worn on the left wrist, although, as a result of their exposed position, the left hand and forearm are very frequently hit by the infantry bullets. When high velocity projectiles chance to strike the watch fairly, the effect is to shatter it into unrecognizable fragments. These fragments are often driven directly into the bones of the wrist, hand or forearm, the resulting damage being so radical that no treatment can restore the industrial use of the arm to the patient. Many of these injuries have been reported in the German army. If the precaution has not already been taken, prohibition of the wrist watch altogether will likely be adopted.

TYPHOID FEVER AMONGST BRITISH FORCES

The Press Bureau of the War Office issued on March 4th a statement of the distribution of the cases of typhoid fever occurring in the British forces in the field. That anti-typhoid inoculation has been proven of great value is seen by a comparison of the uninoculated, the fully inoculated, and the partially protected. There were 359 cases of uninoculated with 48 deaths; fully inoculated within two years (two doses) 111, one death; partially protected (one dose) 136, one death; total 606, 50 deaths. Of the total of 50 deaths, 48 were among the uninoculated, giving a percentage of deaths of 13.364; among the fully inoculated and partially protected, only 0.79 per cent.

News Items

Peterboro medical men will form a base hospital unit.

Fire destroyed the Lakeside Home of the Sick Children's Hospital, Toronto, in April.

The Canadian Militia Department is calling for 100 additional Canadian medical practitioners to serve in England, France and Belgium.

Do not forget the dates of the meetings of the Ontario Medical Association and the Health Officers of Ontario, in Peterboro, May 25th-28th.

When the second Canadian contingent arrives in England, Canada will have over 300 doctors serving in England, France and Belgium.

The Academy of Medicine, Toronto, held its annual meeting on the afternoon of the 4th of May. Dr. W. H. B. Aikins was elected President.

Dr. J. G. Fitzgerald, assistant professor of hygiene, University of Toronto, will have charge of the sanitary arrangements of the Niagara Camp.

Dr. W. G. Anglin, Kingston, Ontario, who will be chief surgeon with Queen's stationary hospital, has been granted the rank of Lieutenant-Colonel.

Drs. John Amyot and Walter McKeown, Toronto, were recently banqueted by many friends in the Ontario Club. Both were presented with wrist watches.

The many friends of Dr. George S. Ryerson, Toronto, are expressing their sympathy in the death of one son, killed in action in France, and another son, severely wounded.

As announced editorially in last issue, the meeting of the Canadian Medical Association in Vancouver, this year, has been cancelled; also the annual meeting of the Canadian Association for the Prevention of Tuberculosis.

Dr. John Ferguson, Toronto, presided at the annual meeting of the Canadian Fraternal Association, held in Toronto the last week in April. Dr. W. S. Harrison, Toronto, was elected President, and Dr. George Elliott, Toronto, Chairman, of the Medical Section.

Mr. Irving Heward Cameron, M.B., LL.D., Professor of Surgery in the University of Toronto, has tendered his resignation. Mr. Cameron has been long connected with medical teaching in Ontario, and has been considered one of the best informed medical men in Canada.

Thirty-five doctors from Ontario, including 14 from Toronto, have been accepted by the Militia Department for commissions in the British R. A. M. C. About 130 applications were received from this Province. The following are the names of those who have been accepted:

E. F. Frederick, 300 Charlotte Street, Peterboro, Ont.; J. F. McLay, Grimsby, Ont.; J. W. Sutherland, 67 Third Avenue, Ottawa; G. C. Anglin, Weston, Ont.; T. O. Hutton, 360 Queen Street, Sault Ste. Marie; Victor McWilliams, 427 Bloor West, Toronto; W. E. Pickup, Fort William; J. C. McLeod, Kincardine; A. F. Mavety, 173 Mavety Street, West Toronto; R. E. Hotkins, St. Michael's Hospital, Toronto; J. N. Humphrey, Wellesley Hospital, Toronto; F. M. Walker, Toronto; H. W. Kerfoot, Hospital for Insane, Penetang; K. G. McKenzie, Stationary Hospital, Exhibition Camp; F. W. M. Smith, Bayfield; N. King Wilson, 380 Bloor Street West, Toronto; O. W. Colbeck, Haileybury; A. Henderson, 152 Wilton Avenue, Toronto; R. Tennent, Belleville; E. A. Urie, Guelph; C. F. Wright, Iroquois Falls; F. J. Livingstone, Hospital for Sick Children; M. H. Patterson, Hospital for Sick Children, Toronto; Austin Evans, Whitby; H. Crasswaller, 133 Ouellette Avenue, Windsor; J. V. Brown, Stationary Hospital, Exhibition Camp, Toronto; R. L. Shields, Port Hope; W. J. Marcey, Parry Sound; F. J. Colling, College Street, Toronto; A. H. Machlen, Goderich; L. M. Dawson, 5 Irving Avenue, Ottawa; K. M. Simon, 653 Bloor West, Toronto; R. H. Bonnycastle, Campbellford; J. J. Middleton, 653 Bloor Street West, Toronto; J. Edward Knox, Toronto.