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FISSURA ANI—ITS DIAGNOSIS AND TREATMENT*

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In this paper I intend to give my observations of cases of anal fissure as successfully treated at the Rectal Clinic of the Post-Graduate Hospital for the last five years, and also intend thereby to make more easy the diagnosis of fissure, so as to enable the general practitioner to give his patients relief from this very common, most painful and distressing anal trouble, which is so frequently passed up by the general practitioner as "hemorrhoids" or "piles" to the great relief of the diagnostic conscience of the doctor and the continued agony and torture of his patient.

The inability of the general practitioner to readily diagnosticate rectal conditions or diseases about the anus as well as diseases of the other parts of the body, with the exception of an occasional snap-shot diagnosis of "hemorrhoids," can be attributed to the following reasons:

First: While our medical colleges throughout prepare their students or matriculates in all kinds of major operations and thoroughly equip them with methods and means of diagnostica-

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ting and treating all kinds of diseases, some so very rare that the general practitioner seldom, if ever, runs across them, very little attention is paid to the diseases of the rectum and anus; and the doctor is sent out unprepared to administer to that part of the body which is so frequently the seat of the most annoying and painful affections, attacking both sexes, the well-to-do as well as the poor, at all ages and in all walks of life.

Second: Patients come all prepared to the physician with a diagnosis of "piles" and the physician very eagerly takes the diagnosis of the patient for granted and, without further examination, prescribes some salve or suppositories and feels that he has done his duty towards his patient.

Third: The objection on the part of some patients to submit to a thorough examination. This objection arises principally in over-modest women, young girls and some very timid men.

Fourth: The repugnance on the part of some physicians to examine the ano-rectal region for fear of soiling their hands.

Fissura ani, or painful ulcer, is a superficial tear in the mucous membrane lining the anus, which is checked at the muco-cutaneous junction, and is always characterized by an acute pain transferred to all parts in the vicinity of the anus, due to spasmodic contractions of the sphincter muscle.

Fissure can be found in the young and the old, but is more common in women than in men, because women are the more common sufferers of constipation and because the skin is of finer texture. It occurs more frequently in the poor than in the rich, and may be single or multiple, although generally single. When of venereal origin, there may be two or three. Fissure may be large or small and superficial, involving only the mucous membrane, or deep and reaching to the fibres of the sphincter muscle.

Fissures always run parallel to the long axis of the bowel, and in 90% to 95% of all cases the fissure is located in the posterior anal commissure, occasionally at the anterior commissure and very rarely at the sides of the anus.

When a fissure is situated anteriorly it usually occurs in women, chiefly in women who have had children, resulting in a greater amount of laxity of the perineum and allowing a tear of

the mucous membrane to take place in the line of least resistance, when the bowels, after constipation, are made to move and the mass of hardened feces is forced through the anus and propelled anteriorly rather, than as is usual, posteriorly.

The most common cause of fissura ani is constipation, followed by a passage of hardened feces over the delicate mucous membrane which may cause a laceration to be stopped only at the muco-cutaneous junction, on account of the toughness or thickness of the skin at the anal margin.

FISSURE MAY ALSO BE CAUSED BY:

1. Atrophic proctitis.
2. Congenital narrowness of the anus.
3. Diseases causing prolonged straining at stool, as diarrhœa or dysentery.
4. Foreign bodies passed from above or per rectum.
5. Syphilitic, tubercular, venereal or malignant ulceration of the rectum or colon.
6. Rectal masturbation, pederasty.
7. Improper instrumental examination.
8. Careless introduction of syringe nozzle while giving an enema.
9. Injury due to child-birth.
10. Prurigo, eczema, or other skin diseases involving the anal region.
11. Hemorrhoids may accompany or cause fissure.

According to the great number of cases seen in the Rectal Clinic of the Post-Graduate Hospital it would seem that contraction or spasm of the sphincter muscle is due to the tear of the mucous membrane and not the reverse, as advocated by some proctologists, that is, that fissure is due to spasm of the sphincter muscle.

The usual formation of fissure is as follows:

During a hard passage of feces after constipation accompanied with severe straining at stool, some projection of the fecal mass is caught or forced into one of the semilunar valves,

tearing its lateral attachments, and the tear or rent in the mucous membrane is extended at each succeeding stool until the skin is reached and the further advance of the tear is checked only at the muco-cutaneous junction, due to the toughness of the skin.

Nature makes an attempt to heal this fissure when the sphincter muscle is at rest, but at each succeeding stool, the sphincter muscle, on stretching, tears open the wound and nature's attempts at healing are destroyed. This causes a smarting, burning pain at the stool, a feeling of heat about the anus, occasional bleeding after stool, and severe excruciating pain following stool, due to spasmodic contractions of the sphincter muscle catching the ulcer in its grasp and resulting in severe pain (likened by the patient to a "toothache") lasting anywhere from two to twelve hours after stool and sometimes this pain is continuous.

The patient with a fissure usually gives a history of constipation, severe straining at stool, one or two drops of blood noted after stool, pain starting almost immediately after stool, and lasting for four or five hours, this pain being situated within the anus, and radiating from this point down the thigh and upward to the sacro-iliac joint, then suddenly disappearing only to return after the next defecation.

Severe pain lasting for from two to six hours after stool is one of the characteristics and diagnostic signs of fissura ani. This pain after stool is so intense and the suffering so severe at times that the patient is actually afraid to have a passage on account of the fearful pain he anticipates. This constant pain and irritation as well as the irregular action of the bowels and the taking of insufficient food cause the patient to become emaciated and debilitated and to acquire a pale, anxious and careworn look.

The nervous system sympathizes with the local condition and very often we find irritation of the genito-urinary organs. Examination of the rectum by the finger or speculum is very painful.

The tearing of the mucous membrane caused by the forcible

advance or propulsion of the hardened feces is checked at the muco-cutaneous junction by the thickened skin, and the fissure is always in an irritated and in an inflamed condition. This inflammation causes edema of the skin at the muco-cutaneous junction, and an inflamed, puffy, edematous, teat-like skin tag is formed (beneath which is the fissure) which is known as the "sentinel pile." This "sentinel pile" is also characteristic of the presence of a fissure, although very often when the fissure has been cured or has healed spontaneously or without operative procedure, this teat-like sentinel pile remains and indicates the presence of a fissure at some previous time.

The sentinel pile is the cause of many errors in diagnosis. Very often physicians on seeing this sentinel pile protruding from the anal orifice make a snap-shot diagnosis of "piles" or "hemorrhoids," and feel very happy and content at making so easy a diagnosis and are so self-satisfied that they do not attempt any further examination which may convince them that there is "more than upon the surface appears," and that this little innocent tag of inflamed skin, which is so often mistaken for a hemorrhoid, has within its folds the fissure which is the cause of all the trouble. The patient, an innocent victim of mistaken diagnosis, is put under a general or local anesthetic, the sentinel pile is cut off, and then the physician is surprised when the patient complains of feeling worse, because now the patient, besides suffering with the pains accompanying the unrepaired fissure, also has a fresh ulceration of the skin which responds as forcibly and as painfully to the spasm of the sphincteric contractions as the original fissure.

Many cases of fissura ani have no sentinel piles, but these are freshly torn and are seen very shortly, say, within a few hours after the tear. When the fissure is freshly torn, the mucous membrane is of normal color, the edges are sharply defined, pliable, not swollen, usually bleeding, and if the bleeding has stopped, is covered with mucous or serum; the sphincter muscle is not contracted and the skin is not inflamed.

Fissures of the anus very rarely heal spontaneously, because when nature makes an attempt to heal the fissure it is so fre-

quently torn open at every passage, and is exposed to infection from the small particles of feces coming down from above, especially if there are loose movements, because patients with fissure take many cathartics to soften the stool or make it fluid so as to relieve the pain which, as a rule, follows defecation. These particles of feces become lodged in the wound and the great supply of nerves in this region causes tonic paroxysmal sphincteric contractions which are very painful, but typical of fissure. The edges of the fissure swell, become edematous and the edges either widely separate, making a distinct cleft, or overlap, and there is a discharge of pus or mucus, causing excoriation, discharge, and pruritis.

When the wound is due to tearing or separating of the edges of a semi-lunar valve and the tear extends under the skin, the skin becomes inflamed and a sentinel pile is formed. When this remains untreated, the inflammation may subside and the parts become less sensitive and all the acute symptoms seem to have disappeared, but the edges of the wound become thickened, hardened and indurated, the mucous membrane becomes chafed, the sphincter muscle hypertrophied, and the anus small, due to the constant contraction of the sphincter muscle; the skin about the anus becomes excoriated, the anal folds more prominent and thickened, due to scratching, and the patient gets pruritis due to the discharge; the sentinel pile becomes smaller and less inflamed and looks like an external hemorrhoid.

Foreign bodies may enter a fissure, or, due to some infection, an abscess may form resulting in a blind internal fistula, complete internal fistula, or complete fistula.

Fissura ani causes more pain and suffering than any other rectal trouble and therefore the profound gratitude of the patient when relieved.

Treatment.—Very rarely the non-operative treatment is efficient. Some fissures when not very deep heal spontaneously if kept clean and are not irritated. In that small percentage of cases that are healed without operative interference, the following treatment has given the best results:

Keep the ulcer or fissure clean. Apply a 2% or 4% solu-

ton of B. eucaine or use the ethyl chloride spray to anesthetize the parts, and then use local applications of a 5% or 10% up to 25% silver nitrate solution for a first application, followed by a 10% solution of silver nitrate, every day or every other day.

Ichthyol in glycerin (10%), balsam of Peru and argyrol 25% as local applications have been used with fairly good results.

Ointments and soothing lotions and powders and rectal suppositories have been used, but all with very little success. Powders should never be used, on account of the tendency of powders to cake, and then act as a foreign body and a fistula or abscess may result and give additional suffering.

The Paquelin cautery has been tried and has been found successful in some cases, after first applying a solution of B. eucaine or cocaine, and being very careful not to burn the skin, because a very painful ulcer follows a burn of the skin with the Paquelin cautery, and one which is also very difficult to heal.

Surgical Treatment is the best and quickest cure for fissura ani, and gives the most gratifying results.

(1) Divulsion of the sphincter muscle is very painful and is to be used only under general anesthesia, or where the patient objects to take a general anesthetic, use local anesthesia by the injection of cocaine or B. eucaine into the sphincter muscle and the surrounding parts after first anesthetizing the wound. This diminishes but does not prevent pain during divulsion. Divulsion can be gradual by a dilator or preferably by the fingers well lubricated with oil or soap. Forcible divulsion under a general anesthetic is preferred, but great care must be taken not to tear the fibres of the sphincter muscle. Three to five minutes should be taken in divulsing the sphincter, and pressure must be brought to bear in all directions. Under general anesthesia, divulsion with instruments should never be used, because one cannot gauge or control the amount of pressure used as well as when divulsion is made by the well lubricated and sensitive fingers.

Relaxation of the sphincter muscle by divulsion, whether under general or local anesthesia, instrumental or by hand,

relieves the spasm of the muscle, prevents contraction, rest is obtained, and the wound is given a chance to heal; then local applications of 4% to 10% silver nitrate solution, every day or every other day, is preferred.

(2) Cutting of the sphincter muscle:

a. Under general anesthesia.

b. Under local anesthesia.

Division of the sphincter muscle under general anesthesia is the best method, but it can be done with excellent results under local anesthesia, as advocated by Dr. S. G. Gant, by the use of cocaine or B. eucaine solution, never stronger than 1-8% or 1-10%, or even by the injection of sterile water, which produces local anesthesia due to the pressure on the local nerve endings, lasting from three to five minutes and for a sufficient length of time to cut the sphincter muscle, and to relieve the patient of this most agonizing pain and suffering.

In division of the sphincter muscle complete and not partial division gives the best results. The fear of incontinence following division of the sphincter muscle is exaggerated very much. I have never seen a case of incontinence following proper division of the sphincter muscle.

Always use a sharp bistoury and cut down through the fissure and through the sphincter muscle, always at right angles with the transverse muscular fibres of the sphincter muscle. Always remove the sentinel pile when present and make the incision extend about ½ inch beyond the anal margin so as to get proper drainage when dressing the wound.

The wound must be allowed to heal from below by placing a strip of narrow gauze to the bottom of the wound, and the patient should receive daily topical applications of 4% silver nitrate solution or balsam of Peru or ichthyol in glycerin 10%.

The patient should have a daily semi-solid stool.

I shall attempt to give a more thorough review of the treatment of this most important rectal trouble in another paper.

The most salient points in diagnosticating and treating fissura ani, are as follows:

DIAGNOSIS OF FISSURE.

1. Burning pain after a hard stool or constipation.
2. Followed by severe excruciating pain lasting three to six hours after stool.
3. One or two drops of blood after stool.
4. Presence of sentinel pile.
5. Dread of having a movement for fear of pain.

TREATMENT.

1. Local applications.
2. Paquelin cautery.
3. Divulsion of the sphincter muscle under general or local anesthesia.
4. Division of the sphincter muscle under general or local anesthesia.

NOTES ON SURGICAL CASES WITH PATHOLOGICAL SPECIMENS.*

By Andrew Croll, M.Ch., M.D. (Edin.), Saskatoon

In order to stimulate the interests of this asociation and to assist in making it a help in our work, I have consented to read notes on a few surgical cases of more than ordinary interest and to bring before your notice the pathological specimens obtained from those cases.

The cases dealing with gunshot wounds and the treatment of tetanus will afford the members of this association, I think, an excellent opportunity to state their experiences with these cases.

The first case is one of *Fibroid of the Cervix.* As you know, the occurrence of fibroid tumours of the cervix is rare. Of seventy-four cases of fibroid tumour reported by Lee, only four were in the cervix. On account of distribution, these tumours lead to difficulty in diagnosis, simulating when large, inversion and prolapse.

They usually give rise to symptoms on the part of the bladder and rectum and do not cause menorrhagia. In this case the predominant symptom was hemorrhage, the bladder and rectum being unaffected.

Mrs. J. W. consulted me in August, 1909, bringing with her a note from Dr. Dickie of Perdue.

She gave the following history:

Age 47; mother of six children, the youngest 17 years of age; easy labors. Menstruation began at the age of 12 years—21 day type—always regular. A half-sister died of cancer of stomach, otherwise family history was good.

Fourteen months prior to consultation she had a severe hemorrhage and again five months ago; no pain; no loss of flesh. Since last hemorrhage vaginal discharge all the time—red

*Read before the Saskatoon Medical Association.

and of a disagreeable odor, until three days ago, when she described it as being "muddy." From the first appearance of hemorrhage she had been kept in bed and the usual drugs given for uterine hemorrhage. She looked very frail and anæmic. P. 88, small and thready.

Examination per Vaginam. A growth, firm in consistence, apparently springing from the right lateral wall of cervix and adjacent uterine segment was made out; very fixed; impossible to diffenentiate Osuteri.

She was sent to St. Paul's hospital, and as she was so frail and anæmic an attempt was made to improve her condition preparatory to operation, but the hemorrhage recurring five days later, a panhysterectorry was immediately performed. The *left* ovary being cystic, was removed.

The patient made a slow but uninterrupted recovery and left the hospital three weeks after operation.

The *specimen* shows a small uterus with long thickened cervix from the anterior wall of the latter and adjacent part of uterus springs a fibroid tumour the size of one's fist. The anterior wall of the cervix is replaced by a mere band, the growth having taken its place. The right ovary shows signs of degeneration.

In contradistinction to this rare form of fibroid of the uterus, I wish to bring to your notice another rare form of uterine new growth, viz.: *Cancer of the Cervix occurring in a comparatively young, unmarried woman.*

D. M., aged 33, unmarried, was sent to me in April of this year by Dr. Cantelon of Hanley, on account of the enlargement of the cervix uteri.

She gave a history of not being well all winter; felt run down and weak; menstruation always regular, not much pain, lasting three or four days. Of late she noticed that the amount of the menstrual discharge was greater than formerly; between the periods some leucorrhæa. No malignant history; no vesical or rectal symptoms; no pain.

On examination the os. vaginam was uniformly enlarged; the body of the uterus was not enlarged; there was no abrasion or ulcer to be seen at any part of the cervix, and in appearance

it looked like a true hypertrophic growth of the cervix, probably congenital and occurring usually in the virgin.

She was sent to the city hospietal and the enlarged os. removed by an anterior and posterior flap amputation. On examining the parts removed, one was struck by their great hardness and this determined me to have a pathological report of them. This was kindly undertaken by Dr. Charlton, who reported: "Specimen shows a marked hyperplasia with infiltration of epithelial cells following the course of the lymphatics. The section exhibits the general characters of carcinoma, and is fairly extensively involved."

A second operation—abdominal panhysterectomy—was immediately performed. This presented no difficulty. The uterus appeared to be, however, more than usually adherent to the base of the bladder, and it will be interesting to watch if recurrence takes place in the vesical region. The left ovary was cystic and was removed: the right ovary was left. Cullen has shown that only very rarely does carcinoma affect the tubes or ovaries secondarily.

She made a good reecovery. At the present time it is too early to mark her cancer cured.

This was undoubtedly a very early case of carcinoma, resembling hypertrophy of the cervix with induration.

Uterine cancer, as you know, occurs somewhat late in life and usually in multipara. The great majority of cases of cancer of the uterus occur between the ages of forty and fifty. At the age of this woman, viz., thirty-three years, the percentage of the cases is less than 5 per cent.

There was no evidence in this case of any local predisposing cause such as we find in multipara, viz., erosion of the cervix and repeated parturition; and except for some increase of menstrual flow, there were no local symptoms of carcinoma uteri such as hemorrhage, offensive discharge or pain. This is just what one would expect in the first stage before ulceration has set in. While she complained of general debility, there was no loss of flesh; in short, she was healthy and well looking.

Next I wish to show you the *Appendix from a case of Acute Intussusception with Strangulation of the Appendix occurring in a child of four months.*

This case was reported in full in the British Medical Journal, November 19, 1910. The interesting points in the case were:

1. The absence on palpation of an abdominal tumour.
2. The ileo-colic variety of intussusception which occurs in about 8 per cent. of the cases of acute intussusception.
3. The invagination of the caecum and the consequent cutting off of the blood supply of the appendix.
4. Tympanitis so great that the gut had to be opened for its relief.
5. Little or no shock from the operation; rapid recovery of the child.

The next case is one of *Gunshot Wound of the Abdomen,* and is, I think, open to more controversy that the preceding cases.

W. A. S., a bank clerk, aged 21, whilst larking with some chums, was accidentally shot in the back with a revolver. The shot entered the back in the left lumber region close to the spine and left the body two inches from the middle line on a level with the 7th C. cartilage.

I saw him a few minutes after the occurrence. A temporary sterile dressing was fixed to the wounds and he was conveyed to the City Hospital, a distance of about two miles, partly by horse ambulance and partly by hand ambulance, as he could not bear even the slight jolting of the horse ambulance over somewhat rough roads. On arrival at the hospital he vomited several times, the vomit consisting of fresh blood, bile-stained blood and "coffee-ground material," and he felt very weak. He was catheterised; the urine did not contain blood.

Owing to the persistent vomiting of blood, an immediate laparotomy was determined upon. Ether was administered. He took this badly and as it was difficult to retract the wound, chloroform had to be substituted. The stomach was brought outside the abdominal wound. It was deeply engorged and close to the pylorus and small curvature there was a wound fully an inch long through which flatus literally hissed. In addition, there

was a splitting of the gastor hepatic omentum. A series of Lembert sutures were placed in the stomach wound and the omentum was brought together. A long gauze drain was inserted at the bottom of the wound. This was removed in thirty-six hours. Subsequently he passed blood in the stools.

His further course was uneventful and he left the hospital three weeks after his admission.

POINTS IN THE CASE.

1. This accident occurred late at night, between eleven and twelve, when very little, if any, food was in the stomach. Peritoneal infection depends upon the size of the wound and the contents of the stomach. Here we had a large wound with the minimum amount of contents. If vomiting occurs with the stomach full, the contents escape freely into the peritoneal cavity.

2. Immediate suturing of the wound in the stomach and omentum was done.

Sir F. Treves, judging from his experience in the South African war, has said that in his opinion "it is advisable to operate in cases in which the abdomen is traversed above the umbilicus owing to the multiple character of the injuries," but others again hold that the lessons of this war have no application in civil practice.

Moynihan, for instance, from the records of 112 collected cases of gunshot wounds of the stomach, verified at the post-mortem examination or at an operation, is of the belief that, "in all forms of gunshot wounds of the stomach, in civil practice, the abdomen should be opened with the utmost expedition." The records of the cases show that mortality increases in direct proportion to the delay.

3. Occupation such that little, if any, dirt entered at the wound.

Gunshot wound of leg in which Acute Tetanus supervened.

I am indebted to Dr. Young for the privilege of seeing and subsequently treating this case.

W. L. C., aged 19, homesteader, was accidentally shot in the leg, on the right side, on May 24, 1910, while returning from an outing, part of which consisted in shooting practice. The guns

had been laid in the bottom of the conveyance and a loaded one was accidentally discharged. The bullet entered the posterior part of the calf of the right leg about the junction of the upper and middle thirds.

The accident occurred in the country and he received medical attention soon after its occurrence. The leg having become very painful and swollen, he was brought to the City Hospital late at night, *three days after the occurrence of the accident.* On admission his temperature was 102.5 F. and his pulse 102. There was considerable cellulitis reaching well above the knee.

On the anterior part of the leg, higher up than the wound, close to the tibia and just under the skin, was felt a hard substance which proved on excision to be the bullet. The entrance wound looked unhealthy, the edges ragged and gaping, and there was a discharge of foul looking pus.

Under an anæsthetic the wound was enlarged and thoroughly irrigated. It was then discovered that both fibula and tibia were involved. The tibia was bared for some distance.

A large drainage tube was inserted and the wound packed. Before leaving the operating table 10 c.c. of Stearn's streptolytic serum was injected.

During the next twelve hours the temperature dropped to 99 and the pulse to 92, the temperature rising again to 101.

Shortly afterwards a further 10 c.c. of serum was given. The temperature gradually fell; the cellulitis lessened until four days after admission, *i.e.*, seven days from the time of the accident his temperature was normal and his pulse 72.

The cellulitis had disappeared, the wound looked well and we were secretly congratulating ourselves that we were out of troubled waters. I saw him late in the afternoon when things looked so satisfactory and he was feeling very well. At 8 a.m. next morning I was therefore surprised when the nurse telephoned that he was complaining of his jaw feeling stiff. When I saw him shortly afterwards his temperature was 98.6, but his pulse had risen to 100.

He was unable to open his mouth and his neck was stiff. There was also marked rigidity of the whole of the affected leg.

He was given an injection of 1,500 units of Parke Davis' antitetanic serum and the affected leg amputated above the knee.

There was very little loss of blood and very little shock. The effects of the chloroform, however, no sooner passed off than periodic contractions of the muscles set in and permanent retraction of the head becoming gradually severer, until there were general convulsions, lasting one to two minutes and finally as long as ten minutes. It was noticed that the hands were involved in the contractions. This is somewhat rare in tetanus.

The convulsions returned with persistent regularity every three or four minutes. During this time the temperature varied between 99.6 and 100, and the pulse from 100 to 124.

With a very severe convulsion he died twenty-six hours after the first sign of tetanus was noticed, or eight days from the time of the injury.

Morphine was tried, and towards the end the pain of the spasms was lessened by the administration of chloroform.

An examination of the amputated leg showed considerable oily greenish discharge from the posterior wound when opened up. The *fibula* showed a penetrating wound passing upwards and inwards from its posterior surface two inches from its head; the wound of the bone posteriorly being more or less round, the anterior ragged and splintered.

The external surface of the tibia, near the head, was indented and the bone around was denuded of periosteum. A tiny fragment of lead can be seen embedded in the bone close to the indentation.

(The tibia and fibula from this case were exhibited.)

This case suggests many pertinent questions.

1. The case was that of a homesteader with clothes laden with the dust of the earth and therefore very prone to have tetanic bacilli in the vicinity at the time of the breaking of the skin by the bullet. The wound was apparently allowed to go scot free for three days, if we are to believe the words of the friends, although a thorough examination at the outset, if necessary under an anæsthetic, would have revealed the severity of the injury. One can scarcely believe that such antiquated no-

tions exist in our profession "that all was well with the lad as the matter was collecting nicely."

2. Are we justified in doing immediate amputation in these cases?

I well recollect, when house surgeon a good many years ago, a case of tetanus ending fatally in a jockey who had sustained a compound fracture of the leg while racing. This lad might have had a better chance, I think, if a less conservative treatment of endeavoring to save the leg had been carried out by immediate amputation.

I do not mean the justification of amputation when the first signs of tetanus appear. That is considered at the present time to be the correct line of treatment, although it appears to me very much like closing the barn door after the horse has gone.

One is, of course, reluctant to advise amputation when a small skin wound is the only external mark of injury, but we err too much by dilly-dallying and forgetting that in tetanus we are dealing with a local infection creating a general toxæmia. The pathology of tetanus points to the fact that the bacilli do not enter the blood but remain localized in the neighborhood of the wound.

The toxins produced there act on the nerves of the central nervous system in a manner similar to strichnine, and unlike other infections, appears to travel in the nerves themselves and not in the blood. One should, therefore, open the apparently small wound and thoroughly disinfect it, for it has been shown that careful antisepsis applied to wound is the surest means of preventing tetanus.

The tetanus bacillus is a strict anærobe and does not grow in the presence of oxygen.

If the wound is allowed to remain septic for some time, the septic bacteria absorb the oxygen present and so make the condition of the tissues best suited for the propagation of the tetanus bacillus.

3. What is the value of antitetanic serum and what other means have we at our disposal to combat this disease?

When we remember that the toxin rapidly unites with the protoplasm of the nerve centres, and that its spread is by way

of the nerve fibres rather than through the medium of the circulation, the unsatisfactory results obtained in the treatment of tetanus by the use of antitetanic serum becomes apparent.

In the case I have just narrated, the effect of the injection of serum was nil; but inasmuch as the onset occurred within seven days, this is not to be wondered at, for we know from statistics that if the incubation period is *under ten days,* only 4 per cent. recover, whatever treatment is employed.

During the past six years the subcutaneous injection of 3 to 4 per cent. sol. of carbolic acid has been tried, chiefly in Italy, with apparently good results. There appears to be an extraordinary tolerance of tetanic patients to its administration, no sign of carbolic acid poisoning supervening.

Its action has not been satisfactorily explained, yet it seems efficacious if statistics can be relied upon.

During the past few years Meltzer and his co-workers have shown that the injection of magnesium sulphate produces spinal anæsthesia; that no danger to the circulation it noted. Very large doses, of course, produce death from respiratory failure, but this can be averted by artificial respiration.

These striking results have now been utilized therapeutically, and the employment of mag. sulph., injected intraspinally in cases of tetanus, has found a number of supporters, chiefly in America.

McPhedran, of Toronto, reports a case thus treated, in the *Canadian Journal of Medicine and Surgery* for June, 1909.

A boy of thirteen cut his foot in a farm yard. A week later tetanus set in. He remained severely ill for nine days, notwithstanding treatment with bromide and morphine. Two injections of antitetanic serum were next tried without benefit. Accordingly, two days later 2 c.c. of sterilized 25 per cent. sol. of mag. sulph. were injected into the spinal canal in the third lumber interlaminal space. Freedom from spasms for ten hours was the result.

Next day 3 c.c. were injected, after which the spasms entirely ceased, and in a month the boy was discharged cured.

It is true that the case was not a very severe one, but McPhedran claims that the mag. sulph. had a beneficial effect.

Of eleven cases treated by him in this way, there were six recoveries (or 54 per cent.).

In an interesting paper read before the Royal Society of Medicine, Phillips discusses the treatment of tetanus by the intraspinal injection of solution of mag. sulph. He shows that notwithstanding the use of antitetanic serum, tetanus is common and very fatal amongst native Egyptians.

During the three years, 1906-1908, twenty-nine cases of tetanus were admitted to the government hospital at Cairo. Twenty-three died, giving a mortality of 75 per cent.

Since the introduction of mag. sulph. injections, seven cases have been treated with three deaths; all the fatal cases were very acute. Taken with other reported cases, we get a total of twenty-eight—twelve deaths—a mortality of 42 per cent.—a distinct improvement on former figures.

The dosage is 1 c.c. of a 25 per cent. sterile solution of mag. sulph. for every 25lb of body weight; roughly speaking, 5-6 c.c. for an adult, 2-3 c.c. for a child.

The action of the injection seems to be entirely in the relief afforded by the diminution of spasms and diminished rigidity.

The results are encouraging and justify a wider use of the treatment.

My best thanks are due to Drs. Young, Weaver and Wright for their able assistance at the operations. Dr. Weaver gave the anæsthetic in his usual careful manner, while Dr. Young assisted me in all but the amputation of the thigh, for which I had the able assistance of Dr. Wright.

THE SASKATCHEWAN MEDICAL JOURNAL

HARRY MORELL, M.D., C.M., *Chairman of Publication Committee*

All communications relating to this publication should be sent to the Saskatchewan Medical Journal, Regina, Saskatchewan, Canada. Box 1106.

Editorial Notes

The Roddick Bill

We offer no apologies to our readers if we give prominence to the Roddick Bill and its difficult passages of Parliamentary procedure. It is our opinion that it will reach its destination during the present session of the Dominion Parliament now sitting. We hope that this Act will be known always as the Roddick Bill as it has been looked after all through its devious passages by Dr. T. G. Roddick of Montreal. The following press despatch is the present status of the proposed Act:

"The dream of complete reciprocity in the recognition of medical degrees which has been entertained by the physicians and surgeons of Canada for a generation past, seems on the eve of realization.

"During the present summer, however, negotiations have been held up with the result that after the opening of Parliament, Dr. J. E. Black, M.P. for Hants, N.S., will introduce a bill to amend the Act of 1902 and insure the recognition of degrees by all the provinces.

"British Columbia was the last province to fall into line, but its consent has now been secured and just as soon as the new bill goes through, about which there is said now to be no doubt, the recipient of medical degrees from any recognized

university in Canada will be able, after securing a certificate from the Medical Council, to practise anywhere from the Atlantic to the Pacific without having to pass the provincial examination.

"Having gone thus far, the advocates of medical reciprocity will now start to work to secure inter-imperial reciprocity in order that Canadian doctors shall be able to practise in any part of the Empire, and doctors from other sections of the Empire shall have a chance to come to Canada under, of course, proper regulation in each case."

Regina General Hospital

The announcement is made as we go to press that Dr. W. A. Thomson has been reappointed a member of the Board of Governors of Regina General Hospital by the City Council, Regina.

No comments—but we reprint the following from March, 1910, this journal:

"The Regina General Hospital affair as taken up in our last number has gone a step further and a petition signed by fourteen medical men of Regina was forwarded to the City Council, in the following terms:

" 'That your petitioners are all agreed that in their opinion it would be in the best interests of the Regina General Hospital if the suggestions contained herein be adopted, and beg to suggest as follows:

" '(a) That no medical practitioner be appointed to the Regina General Hospital Board of Governors.

" '(b) That all matters of special interest to our profession be referred to a committee of three or more medical practitioners elected by the Regina medical profession annually as our representatives, whose duty it shall be to act as an advisory board of governors on matters of special interest to our profession.'

"(Signed)—

Harry Morell,	W. R. Coles,
D. S. Johnstone,	F. J. Ellis,
G. J. Ball,	J. M. Shaw,
W. A. Harvey,	O. E. Rothwell,
J. C. Black,	A. S. Gorrell,
J. Cullum,	David Low,
James McLeod,	H. M. Stephens.

"The petition will be considered in the usual course by the Health and Relief Committee."

The Month

The new General Hospital in Regina is nearing completion and the Commissioner is engaged with tendering for the general equipment. It is hoped that the Governors will instal an X-Ray apparatus, first, on account of this piece of equipment being absolutely needed by the fifteen or more medical men on the staff of the institution, and secondly, for the reason that this is urgently recommended by the committee of medical men elected to act in an advisory capacity at the suggestion of the Board of Governors of the Hospital, and elected by their fellows.

The Canada Lancet in a recent issue has this to say: "The Council of the College of Physicians and Surgeons of Saskatchewan has been called upon by The Saskatchewan Medical Journal for some time to give an account of the funds of the College. According to the latest issue of the journal to hand the call has not yet been answered. The council was organized in July, 1909. Since that date there has been no report of any kind, nor has there been issued a register as required by statute."

The above is a plain statement of fact, the work of bringing on a crisis (if we may use the word) devolved upon us—to point out to the proper authorities the existing condition of affairs. We are happy to announce to our readers, especially those in Saskatchewan, that the books of the council are in the hands of the auditors and the Register is in the hands of the printer. If the above be true, may we hope that the reports, statements and disbursements are plain, clear and correct and that the terms "sundries," "mileage" and other facts are clear and do not require dissection?

News Items

At the regular meeting of the Regina Branch of the British Medical Association held on November the 12th, Dr. D. Low, of Regina, read a very interesting paper on Hematuria.

During the trial at Victoria, B.C., of Gunner Allen, Dr. Ernest A. Hall, who acted as special alienist, gave the following as his opinion: "If Allen hangs it will be one of the most disgraceful affairs that ever happened in our city. He will be simply a victim of human greed and sin."

In Saskatoon, Sask., recently, a dead body was found, which proved to be that of Dr. James Sullivan, of Edmonton, Alta. This, however, has not been verified.

In the latter part of October in Ottawa there was held the first session of the Dominion Public Health Conference, at which were present federal and provincial public health authorities and the members of the committee on public health of the Commission on Conservation. After a few introductory remarks by Hon. Clifford Sifton, chairman of the Commission, an address on "Pure Water and the Pollution of Waterways," was delivered by Dr. C. A. Hodgett, medical adviser to the Public Health Committee of the Conservation Commission.

Married

MARRIED—By the Rev. Murdoch McKinnon, Regina, on December 1st, 1910, at the residence of the bride's sister, Miss Mable Young to Dr. Oswald Rothwell, Regina.

This journal extends congratulations to Dr. Rothwell and his bride.

Correspondence

The 44th annual meeting of the Canadian Medical Association is to be held in Montreal during the first week of June, 1911, following immediately the official opening of the new McGill medical buildings, the Convocation and the McGill reunion. The Programme Committee would be pleased if all those who intend contributing to the scientific part of the programme would send in, as soon as possible, the title of their contribution, together with, if possible, a brief synopsis of the paper. Communications may be addressed to Dr. R. S. Birkett, Chairman of the Programme Committee, at 252 Mountain St., Montreal.

Yours sincerely,

EDWARD ARCHIBALD, M.D.,
Per M.W.R.

Notice

With the January issue this publication will assume the name of THE WESTERN MEDICAL NEWS.

Personals

A very strange and sudden death of one of the well and favorably known doctors of Vancouver is recorded. The following appears on November 12th as a press despatch:

"The Doctor while on a hunting trip in an attempt to recover a mountain goat which the Vancouver physician had shot, became detached from his companions and their Indian guide last Tuesday morning. It was not until late Thursday afternoon that the party, aided by a number of loggers, found his lifeless body. He had evidently lost his way in an effort to take a shorter route back to their camp and died from the exposure. The Indian guide, with another member of the party, had accompanied him down to the foot of the cliff to secure the goat's hide. Carrying the doctor's gun they rejoined the party expecting him to follow. When he failed to return the party instituted an immediate search and for two days guns were discharged and fires lighted to this end. His body was brought back to the city Saturday. The physician was well known in Vancouver, the son of C. W. Ford, was about 32 years of age and leaves a wife and one child."

The following was received from Saskatoon on November 12th: Lawrence Ryan, who Thursday night expired on the floor of the police station after being arrested at a boarding house on Broadway where he was drunk and disorderly, was, it is now learned, a graduate of Dublin Medical College and the University of London, and was the holder of first-class medical degrees. He had seen service in the London General Hospital and quite recently had been medical health officer at Edmonton, having lost his position there through drink. Since coming to Saskatoon he contracted fever and his weakened condition and unsteady habits ended in his tragic death, heart failure being the cause.

Mr. Morrow, of Messrs. Charles E. Frosst & Co., Montreal, was in Regina recently. Mr. Morrow reports splendid progress in many of the products of his company.

Dr. and Mrs. J. H. Mahan, Fillmore, are spending a holiday in Eastern Canada.

The name of this publication changes with the January number.

The new name is to be *The Western Medical News,* as *The Saskatchewan Medical Journal* has outgrown its local name.

Items of Interest

Triumph In Pill Making

Parke, Davis & Co. confess that their soft-mass pill, which is now receiving so much favorable attention from the medical world, was for a long time a "hard nut" to crack. They had set out to produce by the soft-mass process a pill that should be a credit to their house and to manufacturing pharmacy. The task at first seemed simple enough. Here, as elsewhere, theory and practice were at variance. As a matter of fact, a good deal of experimentation had to be done. Time was consumed. Money was expended. In the end, of course, ingenuity triumphed.

In structure the soft-mass pill, as manufactured by Parke, Davis & Co., consists of a plastic mass encompassed by a thin, soluble chocolate coating. It may be flattened between the thumb and finger like a piece of putty. An important advantage of the soft-mass pill is the readiness with which it dissolves or disintegrates in the digestive tract. Another commendable feature is that, no heat being applied in the process, such volatile substances as camphor, the valerianates, the essential oils, etc., are not dissipated, so that any pill embodying one or more of these substances may be depended upon to contain just what the label says it contains.

Parke, Davis & Co. are putting out close to twenty formulas by the soft-mass process—all of them listed, we believe, in advertisements now appearing quite generally in the medical press.

The Young-Thomas Soap Company, of Regina, have many physicians who use large quantities of their cleansing powder in various ways, for instance, for enameled ware, instruments, chemical and laboratory apparatus, etc. This company have now put on the market a soap which compares highly with any toilet soap made. The new soap is named "Buttermilk" and it is highly recommended. Any practitioner who wishes to test these products will be accommodated by making a request to the company at Regina.

Criminal is substitution. "Listerin" was put on the market first after costing the Lambert Pharmacal Company many thousands of dollars. Today after many years it is used all over the civilized world. Of course there are preparations of a "similar" character, but all these false products do not do the work that "Listerin" does. Stick to the original.

Book Reviews

PHYSICIAN'S VISITING LIST (Blakiston's): With the present issue The Physician's Visiting List enters upon the 60th year of its existence Only those publications of decided merit outlive the generation with which they were born and by far the larger number disappear after a few years of struggling existence.

During the life of this book medical science has made greater progress than during the preceding five hundred years.

It has been seen and used by the most famous of American physicians and investigators, as well as by thousands of others whose names perhaps were never known beyond their own local scenes but who nevertheless have done a large share toward the total sum of human happiness. It has made long journeys in the buggy or saddle bags of the country doctor. It has been at the birth and alongside the deathbed of rich and poor, famous and infamous alike. Its volumes hold the life-records of numberless practitioners.

It is needless for the publishers to say that they take great pride in its stability; that they recognize in its success an appreciation of sixty years of effort on their part to provide a useful book and that they realize the help and encouragement that has been given them by the profession for whom it is intended.

The different editions and prices may be obtained from the publishers, Messrs. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia, Pa., U.S.A.

SOME POSOLOGICAL HINTS AND OTHER USEFUL INFORMATION: Issued by *The Fellow's Company* of New York. This brochure, issued to the members of the medical profession by The Fellow's Company, contains a very large fund of information regarding drugs. The subjects are well classed and tabulated, and this information may be found quickly. As an instance the following are taken up: Absorption and Elimination, Incompatibilities, Overdose of Drugs, etc. The brochure is issued in an attractive manner and it should have a place on the desk of the physician for easy reference.

ESSENTIALS OF HISTOLOGY; DESCRIPTIVE AND PRACTICAL. By *A. E. Schafer*, M.D., Sc.D., LL.D., F.R.S., Professor of Physiology in the University of Edinburgh. Eighth edition, enlarged, 571 pages with illustrations. Longmans, Green & Co.: 39 Paternoster Row, London, E.C. Price (10/6 net) or $2.62 net. This work is standard, and the call for this latest edition is self-evident. This book is seen on the work table in nearly all the largest laboratories. In the preface we note that "The present edition is somewhat larger than the last, but the increase is mainly due to additional illustrations, many of these being photographs of microscopic preparations."

HARRY MORELL.

Special Numbers of Medical Journals

"American Journal of Surgery."

The January issue of *The American Journal of Surgery* will be composed entirely of original contributions from the pens of well known Southern surgeons. Among those to appear we would mention:

Pyuria.....By Howard A. Kelly, M.D., Baltimore, Md.

Transfusion of the Blood, Its Indication and Technic.....
By J. Shelton Horsley, M.D., Richmond, Va.

Tumors of the Lower Jaw, the Form Most Frequently Found in the Negro.....By Willis F. Westmoreland, M.D., Atlanta, Ga.

Pylorospasm.....By Stuart McGuire, M.D., Richmond, Va.

Prevention of Immediate Post-Operative Pain by Quinine Injections.....By Drs. V. & V. W. Pleth, Seguin, Texas

The Importance of Educating the Public in Regard to Cancer.....
By Southgate Leigh, M.D., Norfolk, Va.

Aerogenes Infections.....By George R. White, M.D., Richmond, Va.

Stricture of the Rectum, Complicating Fistulae.....
By C. S. Venable, M.D., San Antonio, Texas.

Gastric Symptoms from a Surgical Viewpoint.....
By Louis Frank, M.D., Louisville, Ky.

Dr. Edgar D. Capps, of Fort Worth, Texas, and H. Berlin, M.D., of Chattanooga, Tenn., will also contribute original articles to this number.

"Interstate Medical Journal."

The editors of *The Interstate Medical Journal*, St. Louis, announce the publication of a symposium number on Syphilis for January. The list of articles reads as follows:

The Influence of Syphilis on Civilization.....
Wm. Osler, M.D., Oxford University

Present Status of the "Noguchi Test".....Hideo Noguchi, New York

On the Means of Finding the Spirochaeta Pallida, with Special Reference to the India Ink Method. (From the Laboratory of the Michael Reese Hospital).....J. S. Cohn, M.D., Chicago

The History and Methods of Application of Ehrlich's Dioxydiamido-arseno-benzol. (From the Royal Institute for Experimental Therapeutics).....Lewis Hart Marks, M.D., Frankfort, a/m

Recent Progress in the Treatment of Syphilis.....
H. Hallopeau, M.D., Paris

Treatment of Syphilis with Ehrlich-Hata "606".....
Abr. L. Wolbarst, M.D., New York

Syphilis of the Nervous System.....Ernest Jones, M.D., Toronto

Syphilis and Pulmonary Tuberculosis..Robert H. Babcock, M.D., Chicago

Syphilis as a Cause of Pauperism.....A. Ravogli, M.D., Cincinnati

Giant Cells in Syphilis.....John A. Fordyce, M.D., New York

Personal Observations with the Ehrlich-Hata Remedy "606"....
B. C. Corbus, M.D., Chicago

Syphilis and the Public.....Isadore Dyer, M.D., New Orleans

Sanitary Regulation of Prostitutes.....
Prince A. Morrow, M.D., New York

In addition to the above, there will be four "Collective Abstracts" (critical reviews of recent literature in collective form) on (1) Ehrlich-Hata "606", (2) the Cerebrospinal Fluid in Syphilis and Parasyphilitic Diseases, (3) Serum Diagnosis of Syphilis. (4) Diagnosis of the Osseous Lesions of Syphilis by the X-Ray.