

# Western Canada Medical Journal

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SURGERY AND ALLIED SCIENCES

WINNIPEG, CANADA

VOL. IV

DECEMBER 1910

NO. 12

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# Western Canada Medical Journal

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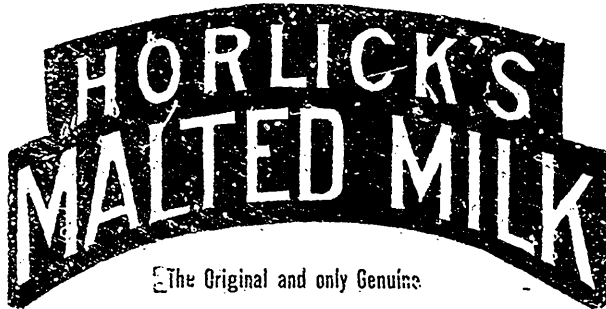
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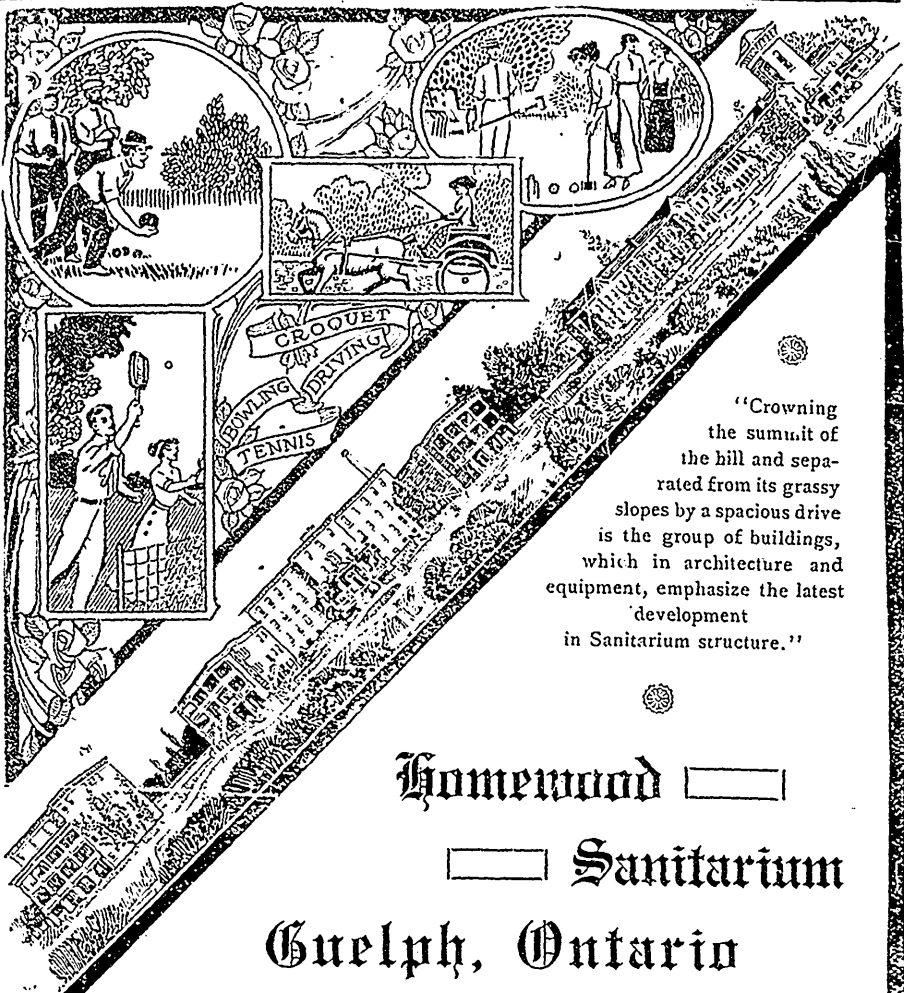
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# MEDICAL JOURNAL

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VOL. IV

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## ORIGINAL COMMUNICATIONS

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### A NEW OPERATIVE TECHNIQUE FOR THE CURE OF VARICOCELE OF THE SPERMATIC CORD.

By Aimé Paul Heineck, M.D.

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From the standpoint of scientific accuracy and completeness, the literature that has been published relative to varicocele is notoriously unsatisfactory. Despite the frequency of this pathological and clinical condition, our knowledge concerning its significance, its etiology, its pathology, and the results of its treatment by operative measures is honey-combed with deficiencies. The purpose of this article is to stimulate and to facilitate the efforts of those that might feel impelled to elucidate some of the many as-yet-unsolved points of this definite anatomical and clinical entity.

At the Cook County Hospital from January 1906 to July 1st 1910 inclusive 155 cases of varicocele were subjected to operation. At least as many other patients were refused operative relief. The operations performed were venous resection, scrotal resection or both combined. The youngest patient operated upon was eleven years old, the oldest fifty-

seven years. The ages of the patients is shown in the following table.

11-20 years—	36 patients
21-30 years—	77 patients
31-40 years—	18 patients
41-50 years—	10 patients
51-60 years—	3 patients

Age not ascertained in eleven cases.

In 4 cases, the affection was right-sided; in 10, bilateral; and left-sided in 131 cases; in 10 cases, the side affected is not recorded. Six cases were associated with an inguinal hernia of the same side, and four with hemorrhoids. In a few cases, the presence of varicose veins of the leg is noted. Though the individual admits individuals of all races, not one of the patients operated upon was colored.

Quain<sup>1</sup> defines varicocele as follows: "A dilated, elongated and tortuous condition of the veins of the spermatic cord, due either to increased pressure within the vessels or to diminished resistance in the walls of the vessels and in the surrounding structures." The pathological dilatation, lengthening, and tortuosity are limited almost always to the spermatic vein and its branches. Exceptionally, the cremasteric and deferential veins and their branches participate in the process. The veins of the scrotum may also show varicose dilatations. The spermatic vein originates at the posterior border of the testis as a thick, closely woven network and forms the pampiniform plexus. This plexus consists of from eight to ten veins most of which lie anterior to the vas deferens; it passes upward, enters into the formation of the spermatic cord, courses through the inguinal canal and finally forms a single trunk in the abdominal cavity. In varicocele the venous lengthening, tortuosity and dilatation are permanent and are associated with histo-anatomical changes in the vessel walls. Temporary dilatation, such as compression of short duration can determine, and which disappears completely after the removal of the compressing agent is not varicocele.

Varicocele may be unilateral or bilateral,<sup>2</sup> may be primary or secondary, that is idiopathic or symptomatic, may be complicated by the co-existence of other local pathological states, hernia, vaginal hydrocele, tumors of spermatic cord, etc., may be associated with a fully developed or with an undeveloped testicle.<sup>3</sup> In Gould's cases,<sup>3</sup> the testicles were small but not wasted. The following varieties are recognized:

- (a) Simple dilatation and varicosity of the veins with or without slight scrotal relaxation.
- (b) Orchidoptosis.
- (c) Varicosities and orchidoptosis.

All authors state that the left side only is involved in by far the larger number of cases (80% to 90%, Chassaignac, Dardignac (4, 5), 92%, Istomin 5a). Clinical observation amply confirms this statement.

Statistics are not in accord as to the frequency of the condition. Senn,<sup>2</sup> in 9815 recruits examined, found varicocele present 2078 times, that is in 2117%. In 15 of these cases the affection occurred on the right side; in 17 it was bilateral, in the remaining cases the left spermatic cord was the seat of trouble. French military commissions report varicocele as occurring in 6.4% of all recruits. No age is exempt. Though it occurs in all ages, it is rare both in the young (6a and b) and in the old. Gould<sup>3</sup> had a case of varicocele occurring in a boy, four years old, and another case in a boy eleven years old. Its period of greatest incidence is between the ages of 20 and 40. Landouzy<sup>3</sup> gives the following table:

In 13 cases the varicocele was first noted between 9 and 15 years							
" 29	" "	" "	" "	" "	" "	15	25
" 3	" "	" "	" "	" "	" "	25	35

Curling<sup>7</sup> gives the following statistics: "

2 cases were between 10 and 15 years when they came under medical notice							
28	" "	15	" 25	" "	" "	" "	" "
14	" "	25	" 35	" "	" "	" "	" "
5	" "	35	" 45	" "	" "	" "	" "
3	" "	45	" 65	" "	" "	" "	" "

No race is immune. It has, however, been observed that negroes are practically free from varicocele. In them, the

scrotum is close fitting and less lax than in Caucasians.

An intelligent understanding of the condition and of its treatment is aided by a correct knowledge of the regional anatomy of the spermatic cord and of the scrotum.

In idiopathic varicocele the patients frequently complain of a sense of weight and of dragging pain in the scrotum and groin, relieved on lying down and increased by severe bodily strain. One must not forget that an entire absence of subjective symptoms is not uncommon and that there are varicoceles of large size which produce no subjective symptoms whatever, no pain, no sexual debility, no wasting of the testicle. In idiopathic varicocele, the veins collapse when the patients assume the horizontal posture. In all types of varicocele, actual or imaginary, the morbid tendencies are frequently aggravated by quack advertisements, commercial medical literature and artful suggestions of the charlatans.<sup>4</sup>

The symptomatic type of varicocele is almost invariably painless. One of its characteristics is that the veins remain distended when the patient assumes the reclining posture.

The secondary or symptomatic type of varicocele may be caused:

1. By neoplasms of the kidney. In 16 cases of renal tumors, six had determined a symptomatic varicocele.<sup>8</sup> Reculus<sup>9</sup> patient, an elderly man, who presented a right-sided varicocele consecutive to a renal cancer.

2. By occlusion of the left renal or of either spermatic vein by a neoplastic growth. In Hochenegg's case<sup>8</sup> the symptomatic varicocele was due to the invasion and obstruction of the left renal vein by the renal growth.

3. By compression of the spermatic vein exerted by cancerous lymphatic glands or by renal tumors, by enlarged retroperitoneal glands. Delbet's patient<sup>10</sup> was 57 years of age and complained of a well-marked but painless right-sided varicocele, which had developed without apparent appreciable cause and had increased progressively in size. The autopsy showed that a cancerous juxta-pancreatic lymphatic gland

had by compressing the spermatic vein determined the venous ectasia.

4. By kinking of the spermatic vein due to inflammatory adhesions, to the weight of tumors, to prolapse of the left kidney, etc.

Among the many causes, all more or less inadequate, advanced as predisposing, contributory or exciting factors to the production of idiopathic varicocele, the following are the most frequently cited:

1. The great length, the vertical course, the dependent position and the great tortuosity and the frequent anastomosis of the spermatic veins.

2. The abnormal thinness of the vein walls.

3. The almost complete absence of support afforded the spermatic veins by the loose tissue which surrounds them.

The pressure exerted by the contraction of the abdominal muscles upon the spermatic veins as they course through the inguinal canal, as by straining at stool, etc. (1, 2, 3, 4, 5) are anatomical conditions common to all healthy men.

5. The plexiform arrangement of the spermatic veins in the scrotum and their termination in one small vein in the abdomen. The radicles of the spermatic veins emerge from the back of the testis, receive tributaries from the epididymis, unite and form a convoluted plexus called the spermatic plexus (plexus pampiniformis), combined lumen of the veins is large as compared with that of artery (spermatic artery), so that the vis à tergo is reduced to a minimum (15c).

6. Aplasia (11, 12) predominating in the veins and valves thereof. "Varicocele is a congenital aplasia of the veins of the spermatic cord." (Escat) "Varicocele is a g-nito-crural fibro-muscular aplasia, chiefly affecting the left side." (Longuet). "Varicocele consists in a loss of tone of all the genito-scrotal tissues" (Longuet).

7. The absence in the diseased spermatic veins of efficient valves. The minor frequency of right varicocele is partly due to the almost constant presence of an efficient valve

at the point where the right spermatic vein debouches in the inferior vena cava. "These veins are provided with valves, but occasionally the valve at the orifice of the left spermatic artery is absent." (Cunningham's Anatomy).

8. Anything which tends to obstruct the free return of blood through the spermatic veins from the testis as, for instance, fecal masses in the caecum or in the sigmoid colon, pressing upon the spermatic veins.

9. Undue activity of the sexual apparatus. In many individuals sexual fatigue is accompanied by a considerable relaxation of the scrotal tissues. In warm climates, lengthening and relaxation of scrotum is an almost invariable accompaniment of varicocele (14, 25).

10. Occupations exposing the scrotum to frequent slight traumatism (horseback riding), and also such as necessitate continuous and prolonged standing. Varicocele is not uncommonly met in those who are long in the saddle and also in those who ride the bicycle to excess.

11. Heredity, traumatism, previous inflammatory states and other indefinite factors.

The reasons advanced to explain the great preponderance of left-sided varicocele are not convincing:

1. Inferior muscular development of the left side of the body from predominant use of the right.

2. Of the two spermatic veins, the left vein is the longer. Schultz says that the right spermatic vein's outlet is  $1\frac{1}{2}$  inches lower than the left. The difference in length of the two veins is slight and does not exceed that between the two iliac veins, which latter has not led to a similar disproportion in the occurrence of varicosities in the veins of the lower extremities (Gould 3).

3. The left spermatic vein is exposed to being compressed by a sigmoid colon loaded with fecal matter. Constipation is not more frequent in those that have varicocele than in other individuals of the same age and class. Constipation is frequent in old men; varicocele is rare in them. Those that look upon constipation as a cause of varicocele find it difficult to



explain why the veins collapse instead of becoming turgid upon the assumption by the patient of the recumbent posture.

4. Rectangular implantation of the left spermatic vein into the left renal vein.

Varicocele (15a) of the broad ligament, a condition in the female that bears some analogy to varicocele in the male, is also of more frequent occurrence on the left side. Kanavel and Miller say: "It is to be noted that of twelve cases of primary varicocele of the broad ligament, six occurred upon the left side alone, in six it was bilateral, in no case occurring upon the right side alone." (15b). Authors have sought to explain the greater frequency of left-sided varicocele of the broad ligament by the same reasons that are advanced to account for the more frequent occurrence of left-sided varicocele of the spermatic cord (15c).

In the differential diagnosis of varicocele, one only need to consider hernia, lipoma, hydrocele communicans. Varicocele may be confounded with an epiplocele because both have a cord-like arrangement.

#### Treatment.

If every case of varicocele is operated on indiscriminately, a fair percentage of patients will suffer permanent bodily harm, locally in the testis and generally in body and mind (13a and b). It is a matter of general knowledge that many varicocele operations are performed in the absence of positive indications. Charlatans have found it very lucrative to needlessly operate cases of imaginary varicocele and cases of very slight dilatation of the branches of the spermatic veins. One cannot too strongly condemn the subjection of a patient to a needless operation.

In the treatment of varicocele operative surgery has a legitimate and well-defined sphere of action. In this, as well as in other surgical conditions, we consider it important that operative indications and contra-indications be formulated with precision.

We are of the opinion that operative intervention is absolutely contra-indicated and not permissible:

1. In pseudo-varicocele. When the veins of the spermatic cord are not the seat of lesions demonstrable to inspection or to palpitation, a varicocele is not present. The surgeon must not accede to the importunities, to the requests of hypochondriacs and of neurasthenics, who insist upon being operated upon for an imaginary varicocele. Many of these individuals are hardened, pessimistic and dangerous neuropaths (16). Owing to the fact that in these cases there is not any vein lesion present, surgical intervention does not benefit the existing orchialgia, testicular neuralgia, or other symptoms of which these patients complain.

2. In symptomatic varicocele. The cure of a symptomatic varicocele is dependent almost entirely upon the surgeon's ability to remove the causative factor.

3. In varicocele occurring in individuals suffering from constitutional states that forbid the performance of operations of elections even if such operations of choice do not entail risks. The various operations performed for the relief of varicocele are without danger to life. Among unfavorable constitutional states, the most important are malignant disease, diabetes mellitus, advanced renal, cardiac and hepatic affections, etc.

#### Indications for Operation.

Relief by operative means is indicated in all cases of varicocele:

1. In which there co-exists an inguinal hernia of the same side, be the hernia complete or incomplete, reducible or irreducible, an enterocele, an epiplocele, an entero-epiplocele. The pressure of an ill-fitting truss cannot only aggravate an existing varicocele, but can also lead to the development of this pathological state. If a hernia co-exists with a varicocele the curative operation for the varicocele is to be supplemented at the same sitting by one for the radical cure of the hernia. Carta (17a), in 150 cases of varicocele, found six co-existing with a hernia of the same side. In 21 cases operated upon for varicocele, Narath (17b) found inguinal hernia sacs.

in five. In one patient, both, the hernia and the varicocele, were bilateral.

2. In which there co-exists on the same side a hydrocele (18) of the tunica vaginalis testis. Both conditions, varicocele and hydrocele, should be remedied at one and the same operative sitting. For varicocele, the operation described at the close of the article should be performed. The hydrocele is best met by incising longitudinally the tunica vaginalis and everting it around the epididymis and scrotal portion of the cord. The upper margin of the everted tunica vaginalis is then sewed to the subpubic fibrous tissue. Carta (17a), in 150 cases of varicocele, found in twenty cases a co-existing hydrocele of the tunica vaginalis testis of the same side.

3. In which there is present on the same side an encysted hydrocele of the cord. The same incision gives access to both pathological states.

4. Associated with or dependent upon the presence of a tumor of the spermatic cord (19). In these cases, the surgeon is confronted by a double indication, the removal of the neoplasm and the correction of the varicocele.

5. Having a history of recurrent attacks of phlebitis and of thrombosis (Burghard 20a, Languet 20b). Two of Narath's cases presented a lipoma of the cord. Here the operation is preferably performed during a quiescent period; at other times, a troublesome spreading thrombosis may originate at the seat of ligation.

6. In which there has been an accidental or spontaneous rupture of one or more veins of the affected spermatic cord. The rarity of rupture is partly explained by the mobility of the spermatic cord, and by the elasticity of its various tunics which together enable the veins to easily shift away from traumatic insults. Patel (21) reports a case of co-existing hydrocele and varicocele of the same side, in which there occurred an apparently spontaneous rupture of one or of several veins of the varicocele. This rupture converted the hydrocele into a hydro-hematocele. Patal exposed and ligated the bleeding points, removed the extravasated blood, and sub-

jected the hydrocele or hydro-hematocele to appropriate operative treatment. Rupture of a varicocele may prove fatal. A case of this nature is reported in the *Lancet* (22). The patient had a left-sided varicocele; as a consequence of a blow received on the left scrotum, the latter swelled to the size of a child's head. Incision of the scrotal swelling was followed by discharge of fresh blood which continued to escape until the patient suddenly died. It was demonstrated that the uncontrolled and fatal hemorrhage resulted from traumatic rupture of a varicose vein of the spermatic cord.

7. That show more than a moderate degree of venous dilatation and tortuosity, because in these cases the functional integrity of the testis is either seriously menaced or involved. It is desirable to rid the patient of the disagreeable consciousness of the continual presence of a testicular tumor (Lydston 29). In mild cases without symptoms, operative treatment is not required. The patient's mental annoyance and exaggerated apprehensions must be allayed by sensible advice (Bennett). In a case reported by Loumeau (23), the patient was 18 years of age and presented for treatment a voluminous and painful varicocele extending downward as low as the middle of the thigh. Berger (23a), in one patient, resected a spermatic vein the calibre of which equalled that of the little finger.

8. That are productive of neuralgic pain in the testis, of pain radiating along the spermatic cord and down the thigh, associated or not with pain in the back and a characteristic dragging sensation. That is, in all types of painful varicocele, the painfulness of which is not controlled by the wearing of a well-fitting suspensory and the employment of judicious non-operative therapeutic measures. No constant relation exists between the size of a varicocele and the degree of pain and other subjective symptoms present. Not unconsciously, the patient is more irritable than the varicocele is painful. Varicocelic pain recognizes various causes: compression of nerve-filaments by varicosed veins; neuritis, due to ectasia of

the vaso-nervorum; atrophy of the gland; the patient's psychical state, etc.

9. That are associated with serious nervous disturbances, such as neurasthenia, psychic disorders, tendency to suicide, etc. (25). These patients, harassed by the presence of their varicocele, often develop a distressingly hypochondriacal state of mind. The operation does not make the neurasthenia worse but often improves the general state of the patient.

10. Showing a steady increase in size and progression of symptoms in spite of appropriate non-operative treatment: avoidance of constipation, cold ablutions of the parts, sexual hygiene, the wearing of a well-fitting suspensory, etc.

11. That show calcareous changes in the vessel-walls. Dardignac (5), and others report cases of varicocele in which the markedly dilated veins were the seat of calcareous incrustations.

12. When the patient wishes to enter some public service: civil, police, military, or naval, and the varicocele is the only existent physical disqualification.

13. If disease of the opposite testicle be present: hydrocele, tuberculous epididymitis, cystic disease of the testis, etc. In the presence of disease of the opposite testis, it is important to preserve the functional and anatomical integrity of the unaffected testis. LeForte (26) presented to the Société Centrale de Médecine du Nord a patient afflicted with a left-sided varicocele extending as far as the lower third of the thigh. The right testical extended lower than the left, was hypertrophied and the seat of a hydrocele.

14. If the opposite testis is lost.

15. In which the nutrition of the testis is threatened. A varicocele can impair the nutrition of the testis in various ways: The process may extend to the intra-testicular veins; by its volume it may injuriously compress the organ; the passive hyperemia of the gland may prove deleterious to latter's nutrition, etc. "When highly or rapidly developed, the dilatation of the veins interfere so much with the nutrition of the gland as to occasion wasting" (Curling, 7).

16. Associated with evident scrotal changes, marked pendulousness, profuse scrotal sweating and obstinate dermic lesions of the scrotum.

17. When the condition is bilateral.

It is our opinion that all the various subcutaneous operations for varicocele should be completely discarded. If a varicocele be of such a degree or nature as to necessitate operative relief, only such methods of treatment should be resorted to as are appropriate. The patient's objection to an open operation should be surmounted or disregarded. One of the most manifest tendencies of modern surgery is to abandon all subcutaneous methods of operating, and among the subcutaneous methods of treatment that have fallen into almost complete disuse can be mentioned the injection treatment of goiter (27), the injection treatment of hernia, of vaginal hydrocele, Bottini's operation for prostatic hypertrophy, subcutaneous suturing of fractured patellae (28), etc. It is incontrovertible that the less an operator knows of anatomy and of surgical operative technique, the more reluctant he is to abandon subcutaneous methods of operating (29).

#### Advantages of the Open Operation for Resection of Varicose Spermatic Veins.

1. Under the guidance of the sense of sight, every step of the operation can be carried out with precision. Insufficient or excessive removal of veins does not occur. The operator removes only that amount of veins, the ablation of which cannot lead to undesirable immediate or remote sequelae. With the subcutaneous methods, the veins can be ligated, but not resected.

2. The inclusion of the vas deferens in the ligature can always be avoided. In the subcutaneous operations a thickened vein may be isolated under the impression that it is the vas, and the vas be ligated with some of the varicose veins. The ligation of the vas deferens permanently occludes the excretory duct of the testicle of that side. From the stand-

point of procreative power, the testicle whose vas has been ligated is and remains valueless.

3. More complete hemostasis is secured. With the open method the complete control of hemorrhage is easily effected. In the course of the subcutaneous operations, a small or a large vessel may be accidentally punctured; such a puncture can lead to the formation of a hematoma, can give rise to an extravasation of blood into the scrotal tissues. Either of these accidents necessitates an incision of the scrotum, followed by evacuation of the extravasated blood, and ligation of the bleeding points.

4. A slight lengthening of the usual incision enables the surgeon to appropriately treat co-existing neighboring pathological states, as hernia, vaginal hydrocele, neoplasms of the spermatic cord, etc.

5. The simplicity of technique of the open operations places them within the reach of all operators.

The permanent occlusion or obliteration of the ligated, divided or undivided, spermatic veins is effected by the organization of the thrombi that form on the proximal and distal sides of the ligatures placed on the non-divided vessels, or on the ligated proximal and distal ends of the divided vessels. In the subcutaneous methods, the expectation of permanent cure is also based on the organization of thrombi forming on each side of the ligature. For the organization of a thrombus time is required. The transformation of a thrombus into a block of connective tissue is effected not by the cells contained in the thrombus, but by the proliferation of the cells of the injured vessel-wall. The vessels of the occluding block of connective tissue are derived from the vasovascularum of the ligated vein. Previous to the organization of the thrombi, undue activity on the patient's part may lead to the dislodgement or detachment of thrombotic particles, and to emboli formation and its consequences. Therefore, all forms of operative treatment that do not exact confinement of the patient to be for at least a week are to be condemned. Early activity on the part of the patient has determined such

unfortunate accidents as pulmonary infarcts (30).

For the treatment of varicocele, many various operative procedures have been suggested. Vince (31) treats varicocele by resecting and shortening the lengthened and relaxed cremaster muscle. He incises the skin from the external abdominal ring to the superior pole of the testicle. An incision of the same length divides the intercolumnar fascia and the cremasteric fascia and muscle longitudinally. The cord is elevated from its bed and retracted. Vince then applies transversely on the cremaster muscle two forceps at a distance of 6 cm. from each other and resects that portion of the muscle extending between the forceps. The two muscular extremities having been sutured to each other, the cord is replaced on the surface of the muscle, and the longitudinal incision closed. In exceptional cases, Vince supplements this procedure by partial resection of the diseased veins.

Brault (24) resects the varicose veins and, in addition, excises an oval flap from the postero-external surface of the scrotum. He recommends the employment of his method in all cases of varicocele that have recurrence after bilateral resection of the scrotum. For the operative treatment of varicocele he considers bilateral resection of the scrotum the operation of choice.

Brault's operation consists of the following steps:

1. Excision of an oval postero-external scrotal flap.
2. Longitudinal division of the spermatic cord's sheath.
3. Resection of the varicosed spermatic vessels.
4. Careful suturing of the sheaths of the spermatic cord.
5. Closure of wound in such a way that the resulting line of suture has the shape of an inverted V.

For the cure of varicocele, Parona (18) has devised an operation which still enjoys a degree of popularity. Its different steps of execution are the following:

1. Make 6 cm. incision extending from the external abdominal ring downward upon the neck of the scrotum.
2. Isolate the testicle. The testicle and the spermatic cord are completely freed so as to permit their delivery, their



enucleation through the scrotal incision. The cord is isolated as far as the external abdominal ring.

3. Incise longitudinally and then evert the tunica vaginalis testis. After aversion, the upper margin of the tunica vaginalis is sutured with catgut to the internal pillar, to the pubic fibrous tissue and to the external pillar in such a way as to convert the vaginal tunic into a sac ensheathing the dilated veins. The empty scrotal sac created by the suspension of the testical is obliterated by suturing of the opposed walls.

Parona aims by this approximation of the testicle to the external abdominal ring:

1. To lessen the height and weight of the testicle to the in tthe spermatic vein and branches.
2. To favor the venous return circulation.
3. To aid the action of the cremaster muscles.
4. To obtain a permanent firm physiological suspension of the testicle. The everted and fixed tunica vaginalis maintains the testicle elevated, exerts moderate compression upon the varicose veins and to a degree hinders the elongation of tthe spermatic cord. Parona's operation is not serviceable in the presence of a markedly pendulous scrotum or of a varicocele too voluminous to be contained in tthe vaginal suspensory. It has been objected to Parona's operation that in-somuch as it deprives the testicle of its vaginal envelope it is antiphysiological. Though the forementioned methods have, in some hands, given good results we recommend their general abandonment and the employment of the operative procedures separately, exceptionally conjunctly almost always that we are about to describe.

We aim by these two operative procedures, performed at one and the same sitting:

1. To suppress the subjective symptoms: pain, sensation of weight and fulness of the scrotum, dragging sensation along inguinal canal, etc.
2. To secure the re-establishment to physiological conditions of the altered venous circulation and thereby to pre-

vent degenerative changes in the testis. Should the testis be undersized or somewhat atrophied call previous to operation, the patient's notice to the condition; it becomes more apparent after resection of the veins.

3. To restore to the scrotum its normal contour and dimensions.

4. To support the testicle in such a way as to permanently hinder its descent as well as to prevent the elongation of the spermatic cord.

5. The removal in part of the diseased vessels.

In the operative treatment which we practice and recommend for varicocele, we make a direct and an indirect attack upon the existing pathological conditions. We ablate some of the varicosed veins; we shorten the relaxed and lengthened scrotum. It is a mixed method suppressing by resection of the varicosed veins the main element of the conditions; and by resection of the pendulous scrotum, an accessory, a contributory element of great importance.

This double operative procedure—

a. Resection in part—diseased veins.

b. Resection of the pendulous and attenuated scrotum—can, without haste, be readily performed in about 15 minutes. It entails no risks to life and, when performed by careful and experienced hands, is never followed by undesirable immediate or remote sequelae. An assistant is necessary.

The patient and the operative field having been prepared according to the teachings of modern aseptic surgery as for a major operation, it is well to have recourse to general anaesthesia. We know that these operations can and have been performed successfully with the aid of local anaesthesia, but clinical observation and operative experience have taught us they can be performed immeasurably better if the patient be anesthetized by the aid of a general anesthetic. General anaesthesia secures a more complete abolition of pain and enables the surgeon to do his work deliberately and precisely.

#### Operation Proper.

i. Patient in the dorsal recumbent posture, the lower

limbs straight out, short distance apart.

2. Reoperation of the operative field—inguinal, pubic, and scrotal regions.

3. The operator makes an inch or an inch and a half oblique incision, the midpoint of which corresponds to the pubic spine, dividing the skin and superficial fascia and exposing the spermatic cord. This incision is practically a suprapubic incision. It is easier to isolate the veins close to the inguinal canal than near the testis, and as here fewer vessels have to be ligated, the mass included in the ligature is smaller. Thomson says that the secret of the operation is to attack the veins high up where they are lying in a distinct tube of fat and fascia, distinct from the vas.

4. The spermatic cord is then isolated and elevated from its bed. The cord's envelopes, the infundibuliform fascia, the cremasteric fascia and muscle, and the intercolumnar fascia, are incised longitudinally and thus the spermatic veins and branches are made easily accessible.

5. Identify the vas deferens and if possible the spermatic artery (38). The vas deferens, owing to its volume, its consistency, and its cord-like feel, can always be recognized; the spermatic artery, however, is at times extremely difficult to positively identify. As the pulsations of the spermatic artery are often imperceptible, they do not furnish a constant guide to the vessel. Bear in mind that the artery is always close to the vas deferens, that it accompanies it and follows the same course, and avoid including the vessel in the ligature (38). Do not injure the vas deferens and its blood supply. Leave the veins of the vas deferens and also those that course upon the cord's sheaths undisturbed. These vessels should not be ligated, should not be resected as they are important for the re-establishment of the collateral circulation. The spermatic veins have numerous anastomoses with the veins of the vas deferens, of the scrotum, of the septum scroti. Operate with as little traumatism as possible, and observe the most rigorous asepsis. Let there be no needless handling of the vas deferens, of the epididymis of the testis. If the

vas deferens or testicle be roughly handled, orchitis or epididymitis may supervene.

6. The condition is usually limited to the spermatic veins or pampiniform plexus. The larger portion of this plexus can be resected. To resect all of the veins of the spermatic cord is a grave mistake. In Porter's (32) case, after an operation for varicocele, the testicle, owing to a sufficient blood-supply not having been left, became inflamed, was unable to recover, and sloughed.

Isolate the veins for a greater distance than the amount of vessels to be removed, so that when the divided ends are united too great kinking of the vas will not take place (33). Though the vas deferens is about 18 inches long, the actual distance traversed by it is, owing to its somewhat convoluted course, not more than 12 inches. Therefore, shortening of the cord by resection of the veins does not interfere with the functions of the vas deferens. Most operators ligate the veins with strong catgut at two different points, about two inches apart. The intervening portion of the vein is resected. Other operators ligate the veins about half an inch above the epididymis, and again a little below the external abdominal ring and resect the intervening portion. It goes without saying that these compressing ligatures are applied perpendicularly to the course of the vessels. The upper and lower ligatures are tied to each other; there results from this apposition of the ends of the several veins and induration which need cause no alarm as it gradually undergoes absorption, in about 3 months (Potter, 35).

The ligation and resection of the left spermatic veins interrupts the weight of the venous-blood column that formerly extended from the left renal vein downwards to the testicle. The knotting together of the upper and lower ligatures of the divided veins assists the enfeebled cremaster muscle in its endeavors to support the dependent testicle. This also removes more or less continuous strain from the vas deferens; and its accompanying vessels. After approxim-

ating the ligatures, the proximal and distal stumps are sutured to each other.

Eads (34) and others advise avoiding injury to the genito-crucal nerve which supplies the cremaster muscle. If this nerve is cut, the portion of the cremaster muscle distal to the seat of the division is deprived of its power of contractibility, its blood supply is diminished, it wastes, weakens, stretches and the natural consequences are a flabby scrotum.

7. Carefully inspect the stumps for oozing. Great care must be taken to secure complete hemostasis, for small bleeding points may give rise to large-sized hematomata. Slight hemorrhage, such as would occur in connection from a damaged vein leads to the formation of a hematoma which can by exerting pressure upon the remaining veins prove a potent factor in determining oedema and thickening of the scrotum, subjacent tissues and testis. Post-operative hemorrhage may be due to slipping of the ligature, to the use of a faulty knot, to defective ligature material.

By tying together the proximal and distal ends of the divided vessels, in case of slipping of ligatures, it is easier to locate the bleeding points. Krone (36) anchors the divided stump of veins above, to fibers of ring, and below, to Poupart's ligament.

Corner and Nitch (37) report two cases of varicocele in which resection of the veins was followed by post-operative hemorrhage. In these two cases the pelvis was filled with blood which had escaped from the retracted end of the spermatic artery projecting through a rent in the peritoneum.

8. After all hemorrhage has been arrested, the divided sheaths of the cord are sutured and this is followed by the closure of the operative wound.

As previously stated we always supplement this resection of the veins of the spermatic cord by partial amputation of the scrotum. We consider this step essential to effect a prolonged, if not a permanent, cure of the condition. In over one hundred cases operated on during the last two years at the West, Side Reliance, University, and Cook County Hos-

pitals, we have not noted a single tendency to recurrence.

The relaxed pendulous and attenuated state of the scrotum associated with varicocele suggests retrenchment of the redundancy. By resection of the scrotum, a natural suspensory is formed which will keep the testicles in good position and prevent a recurrence of the disease. A close-fitting scrotum, by better supporting the testes, by keeping them higher, prevents traction upon the veins of the pampiniform plexus and thus renders them less liable to dilatation.

Skin of scrotum is thin, elastic, is pigmented and marked by a longitudinal raphé and when contracted by transverse ridges. In scrotoectomy performed *secundum artem*, the vas deferens and its vessels and the spermatic artery are not exposed to injury.

The technique for scrotoectomy which we are about to describe possesses the following advantages:

1. Rapidity and simplicity of execution. Interrupted sutures are not used; they complicate and prolong the operation and do not afford as much protection against hemorrhage as the continued suture-ligatures employed.
2. Adaptibility to the cure of relaxed scrotum irrespective of cause. It will be found serviceable to correct scrotal overdistention caused by voluminous varicoceles, large scrotal hernias, large hydroceles, testicular neoplasms, etc. It builds out of the scrotal envelopes a natural suspensory and removes all the scrotal tissue that appears needless, superfluous.
3. It requires little if any post-operative treatment. As catgut is the only suture and ligature material used, there is no call for the removal of stitches or ligatures. The portion buried in the tissues is absorbed; the remaining portion is cut off.
4. No special instrument is required. No clamps are used. Two needles, three artery forceps and a pair of scissors suffice to accurately perform the operation.
5. Absolute control of operative hemorrhage.
6. Absolute prevention of post-operative hemorrhage.

7. Safety and efficiency. In over one hundred cases, our results have been uniformly good. We have had a few cases of healing by delayed first intention, but in these cases, even healing by secondary intention does not unfavorably influence the ultimate results of the operation.

Scrotectomy would have enjoyed a greater popularity if a method had been devised previous to our own enabling the surgeon in this operation to easily and surely control hemorrhage. It is the fear of hemorrhage, operative and post-operative, the fear of hermatoma formation, which has deterred many surgeons from performing this operation, and which has led others to devise ingenious clamps for the prevention and control of this accident. There is not any clamp, whether convex or concave, whether designed to be applied proximally or distally to the site of section that has proved universally efficient. It is now conceded that clamps do not furnish an absolute safeguard against hemorrhage. Accidents have followed their use by competent hands (Dardignac, Lucas-Championnière, etc.). We have discarded the use of clamps, special or others, and have succeeded in working out a technique which absolutely eliminates all danger of hemorrhage, primary or secondary.

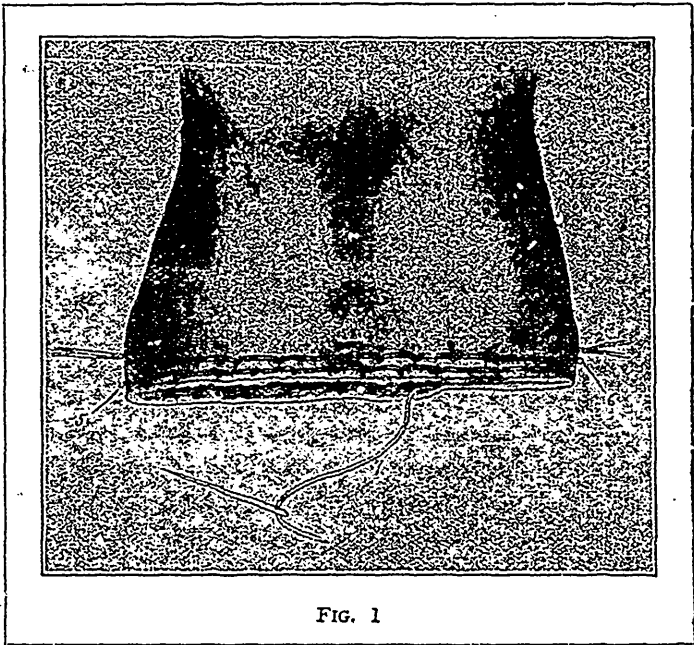
In resecting a scrotum, the line of section may be unilateral, may be bilateral; may be longitudinal, may be transverse. We almost invariably resort to a bilateral transverse line of section. The same technique, however, is serviceable for a longitudinal line of section. In longitudinal resection, the cicatrix falls in the line of the median raphè, or rather reconstitutes it, and the scrotum is in no way deformed. Transverse bilateral resection possesses the advantage of acting upon both halves of the scrotum at the same time, and of giving a cicatrix that does not in any way interfere with future penile erections.

Proceed as follows:

1. The assistant with the fingers of one hand spreads the scrotum to its maximum, and with the fingers of the other hand pushes the testes towards the inguinal canal. It is de-

irable that neither the testes nor the tunical vaginalis be traumatized or injured. The operator then estimates the amount of scrotal tissue which it is proper to remove. Enough must be removed so that the new scrotal sac will firmly support the testes. Care must also be taken not to remove too much; otherwise the new scrotal sac will cause discomfort by compressing the testicles against the pubic bones.

2. It has been observed in this operation that the vessels



of the septum scroti were frequently the origin of the post-operative hemorrhage. Therefore, in scrotoectomy, these vessels must be kept in mind. In operative surgery, the customary and elective way of arresting hemorrhage is by ligating vessels at their bleeding points. Surgeons rarely depart from this rule and the ligation in continuity of a vessel for the arrest of hemorrhage is an exceptional procedure per-



formed only under exceptional conditions. In the ligation of a vessel, the compressing ligature is placed perpendicularly to the course of the vessel and directly upon its walls. This is the usual procedure and is known as immediate ligation. In scrotectomy, however, we make use of mediate ligation, the compressing loop of catgut is placed perpendicularly to the long axis of the vessel, and in such a way that between it and the vessel wall there intervenes a layer of scrotal skin and underlying tissues.

3. Two catgut ligatures are introduced at the point marked 1 Fig. 1, 3, and 4; they are knotted and cut short.

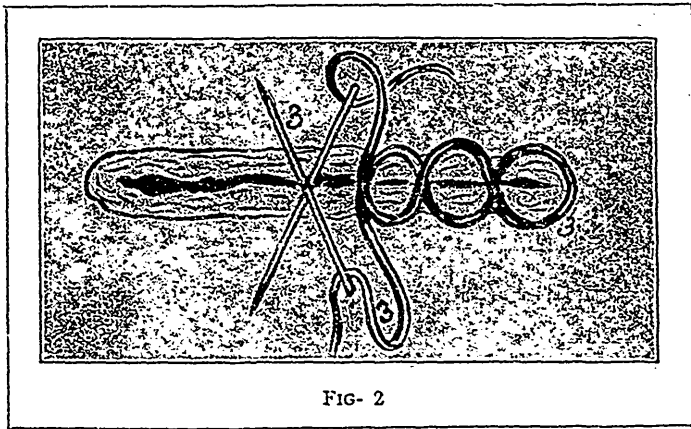


FIG- 2

These ligatures perforate the anterior and posterior scrotal walls at about the median raphé and are designed to control, to prevent hemorrhage from the septal regions. They are important factors in the securing of hemostasis.

4. One ligature is introduced at each lateral margin of the scrotum, 2 Fig. 1, 3, and 4. These two ligatures are knotted, and the ends for the time being left long serve as guy-ropes maintaining the scrotal tissues taut while the two suture ligatures are being introduced.

5. The point of scrotal resection has previously been determined, 4 Fig. 1, 3, and 4. Two long ligatures of thick

catgut are selected and each one is needled at both ends. The needles which I prefer for these suture-ligatures are long straight needles, flattened from side to side, (straight spear-pointed needles are also useful). No needle-holder is used. The needle-eyes must be large enough to allow the easy gliding into them of the catgut. The assistant, by the aid of the two lateral ligatures, 2 Fig. 1, 3, and 4, and a for-

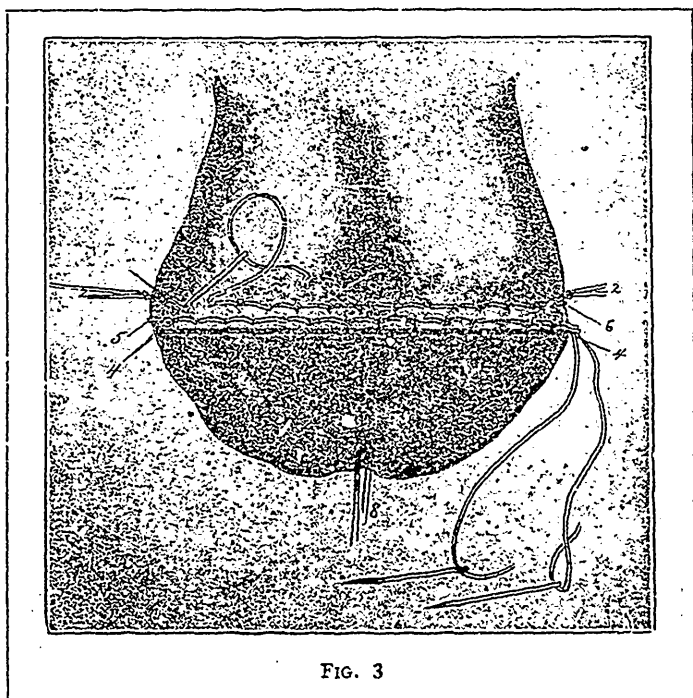


FIG. 3

ceps or tenacula placed at point 8 Fig. 1 and 3, spreads out fan-shaped the portion of scrotal tissue which the surgeon is about to ablate.

6. At about a  $\frac{3}{4}$  cm. from the proposed line of scrotal section, the operator makes the middle of one of the double-needled strands of catgut saddle the lateral scrotal margin nearest to him, and then proceeds with the introduction of

the first suture-ligature as shown in plate 3. This is a continuous stitch somewhat analogous to the cobbler's stitch, extending from one lateral scrotal margin to the other and including in its loops the anterior and posterior scrotal walls and intervening tissues, 5 and 6, Fig. 1, 3, and 4. It is seen that the two needles are used at the same time; and that they constantly go in diametrically opposite directions, Fig. 2. Upon reaching the further lateral margin, the ends of the

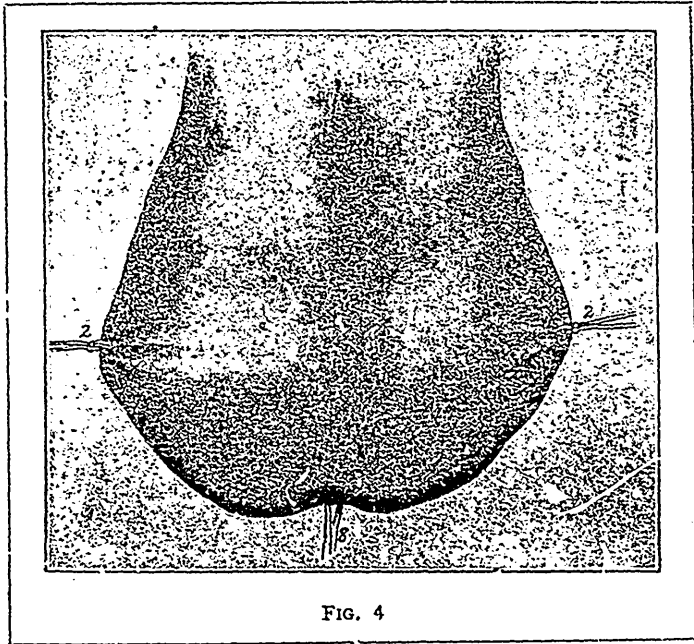


FIG. 4

suture-ligature are tied, knotted and cut short.

7. A similar continuous, cobbler-stitch-like suture-ligature extending from one lateral scrotal margin to the other is now inserted, 6 Fig. 3 and 4, at about a  $\frac{1}{4}$  cm. within the one just introduced, or at about  $\frac{1}{2}$  cm. within the line of proposed scrotal section, 4 Fig. 1, 3, and 4. Like its mate, it perforates the anterior and posterior scrotal walls and its

loops are intended to approximate the scrotal tissues and to control hemorrhage. By looking at the illustrations, it will be seen that the needle punctures of one suture-ligature correspond to the middle of the loops. After this suture-ligature has covered the entire transverse width of the scrotal sac, it is tied, knotted and its ends are cut short.

8. The operator now cuts off with scissors the redundant scrotal tissue. 4 corresponds to the line of scrotal section.

9. Usually the edges of the wound gape and this is overcome by the introduction of a continuous subcuticular catgut stitch, 7 Fig. 4. The wound is dressed, rubber tissue being placed over the dressing to prevent the possibility of contamination by urine.

10. A double spica gauze-bandage is now so applied as to maintain the testicles elevated upon the abdomen, and to exert slight but painless compression upon the new formed scrotal sac. As after other operations performed upon the spermatic cord or the scrotum, the patient may suffer for a few days from urinary retention. This is easily and safely overcome by gentle and aseptic catheterism.

Resection of the veins is occasionally followed by some oedema of the scrotum, a little engorgement of testes, and a moderate effusion into tunica vaginalis. This gradually disappears and need occasion no alarm.

So as to maintain the operative region dry, it is well to change the scrotal bandage every few days.

The patient is confined to bed two-weeks and for a month thereafter, but no longer, is to wear a well-fitting suspensory.

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## CLINICAL MEMORANDA

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### ELECTRICITY AND LIPOMATA.

Not having come across any reference to the treatment of fatty tumors by electrical modalities, I thought that an account of the two following cases might be of sufficient interest to your readers to make it worth while for you to publish it in some number of the Western Canada Medical Journal.

Mr. B., aged 53, was kindly referred to me in November 1906 by Dr. Devine. In August 1906 he submitted to an operation for the removal of a fatty tumor situated on the back of the neck. Further growth occurred above the site of operation which, when he came to me, was about the size of a chestnut. When fatigued there was pain between the shoulders or on top of the right shoulder; and pressure, as of a coat or lying upon the mass, also caused pain. Because of the pain he sought further relief. Having stated that I had had no experience of electrical treatment in lipoma and therefore could not say what benefit would result, but that at any rate the condition would not be made worse, the patient determined to try what could be done. The treatments were given between November 22nd and December 5th, 1906. The pain was completely relieved by the first three and the heavy fur coat could be worn with comfort. By the end of the course the tumor was so far reduced as to be scarcely perceptible. There has been no return either of the pain or of the growth to the present time—a period of four years.

Mrs. L., aged 33, was kindly referred to me by Dr. J. N. Andrews of Minnedosa. This was a case of multiple lipomata. For eleven years fatty tumors had appeared on different parts of the body. The first which grew to the size of a small apple was situated on the back of the head and was removed by Dr. Andrews. In all three operations have been performed for the removal of tumors from different parts.

When I first saw the patient there were fourteen tumors varying in size from a small egg to a large pea. They were tender to the pressure of the clothing and to touch and occa-



sionally pained without apparent cause. One growth was situated in the epigastrium, one in the middle of the back about opposite the umbilicus, one over the manubrium sterni, one between the shoulder just below the nape of the neck, one over the ulnar edge of the right forearm and another in the right popliteal space. The positions mentioned show the wide area of distribution and the difficulty of preventing pain by pressure of the clothing which affected the general health to a marked degree. The course of treatment extended over a course of thirty days because, on account of their number, it was not thought advisable to treat all the tumors at each sitting. Two or at least three séances removed the tenderness and pain in nearly every instance and by the end of the course all the tumors treated had practically disappeared. The general health improved until the patient felt 'quite well' which she had not done for years before.

I was led to undertake the treatment in the case of Mr. B. by reflecting that the tendency of the moladity used is to retard cellular activity and to have a selective action in destroying tissues of low vitality such as fat and the cells of morbid growths. The result confirmed the reasoning. With the experience of the first case there was no hesitation about undertaking the second.

The advantages of electrical treatment as compared with operation are these: There is no pain; it is not necessary to interrupt the occupation; it is more efficient in that the outlying portions are equally affected with the main mass, this is important because recurrence occurs from subsequent growth of portions not removed at the time of operation; the normal tissues are not interfered with so that no scarring is left; and finally, there is not the remotest chance of infection. In the case of multiple lipomata occurring in great numbers (over 2400 have been reported in one individual) operation is out of the question.

JOHN H. R. BOND,

M.B., C.M., Edinburgh University.

PROCEEDINGS OF THE WINNIPEG CLINICAL  
SOCIETY.

Tuesday November 15th 1910.

Dr. R. G. Montgomery shewed a man aged 24 who came to him 2½ months ago complaining of difficult urination. The prostate was found to be enlarged and tender. He had a urethritis 14 months ago. Massage and irrigation gave no amelioration of his symptoms. No gonococci could be found in the fluid expressed from the prostate. He consented to operation and was sent to hospital. The gland was attacked perineally. The capsule was incised and the broken down glandular tissue removed; a ½ drainage tube was stitched in and removed in 4 days. The recovery was uneventful. Dr. Montgomery went on to speak of prostatic surgery. Hunter and Brodie were the first in England to attack the prostate surgically, Mercier in France and Bilhoth in Vienna (1867). To Belfield of Chicago belongs the merit of being the first to perform a radical operation, in 1886 (?). McGill of England in 1887, Tufler of New York in 1894, Freyer (complete enucleation in 1900). Both routes are advocated by equally good surgeons, the suprapubic by Freyer, Dever, Moryhon and others; the perineal by Goodfellow, Young, Murphy and Ferguson. As to the cause of prostatic enlargement, the Doctor agreed with Crandon, saying, that the underlying cause was a slow formation of new connective tissue due to infection, or to infection aggravating a senile degenerative process. Gonorrhoea was the most common infection.

Dr. Lehmann criticized severely for attributing gonorrhoea as a cause of prostatic hypertrophy. Enlargement in old age was believed to be almost universal and obstruction an accident. If, roughly, 65% of males had had posterior gonorrhoeal infection, one would expect that the generation which enjoyed their gonorrhoea 50 years ago, when the treatment of suppurating prostates was not carried out efficiently, one would expect now to see an overwhelming number of enlarged prostates with obstruction. The clinical

evidence does not bear this out.

Dr. Tees presented a "blue baby," 5 months old, one of twins. It had been deeply cyanosed since birth the condition becoming exaggerated on coughing and crying. It was breast fed for two months, then on bottle feeding. The surroundings were not of the best but in spite of this the child was thriving fairly well. There were no physical signs upon which one could base a diagnosis. The other twin was normal.

Dr. W. J. Grant showed a man, aged 30, who had sustained an extensive burn by gasoline 5½ months ago. The right arm from the elbow down, nearly all the left arm, a large area on the trunk, the buttocks and thighs were all involved, ranging from the 1st to the 4th degree, mostly the 3rd. It was estimated that at least ¼ of the total area of the body surface was involved. The treatment had been varied, "Caron oil," sterile vaseline, zinc oxide &c. all being used. He could not say that he had obtained any special beneficial effect from the analine dye ointments. The surface was completely healed with the exception of one small patch. Contracture of the arm had been considerable, but was improving under manipulation. Keloids had formed in several places. He would refer the case to Dr. Bond for the treatment of these.

Dr. Bond presented a radiograph of the abdomen of a young woman. It was taken from the front. It showed a distinct shadow of the density of bone about 1½ inches long and 1 inch wide in the right upper quadrant. A second radiograph showed the same shadow in the left lower quadrant. Clinically it was thought to be a tumor complicating a three months' pregnancy. The question was what kind of a tumor? The plates suggested a dermoid cyst of the ovary with a long pedicle. Operation proved the correctness of this. Recovery was perfect and pregnancy uninterrupted.

Dr. Raymond Brown presented the following case:

Patient, female, unmarried, milliner at Eaton's, age 25 years, complaining of loss of vision in left eye for 3 weeks,

also complains of periodic headaches usually coming on in evening and being quite severe, pain being most severe in top of head and left temple. Patient gives a history of loss in weight and some previous amenorrhoea which cleared up under Bland's. No history of syphilis, some relations died of tuberculosis. Examination of patient's eyes, Vision right, 20/20, Vision left, Nil. Left pupil slightly dilated and reacts very little to light. Left fundus markedly oedematous, disc entirely obliterated. Veins congested and tortuous, arteries very small, fundus raised for nearly two diopters. No hemorrhage anywhere.

Diagnosis—Optic Neuritis.

Right eye—no visible changes per ophthalmoscope, color fields, however, markedly consensually contracted and patient says she has quite often, momentary losses of vision.

Urinary findings entirely negative. Pulse 78, temperature 98.6, white blood count 10400, red blood count 500,000, hemoglobin 80%. Eyeballs are not tender, all muscles normal. Has a slight hypermetropia for which she is wearing the correcting lenses. There is surely no history of vomiting or any other signs of a brain tumor.

Diagnosis, Optic Neuritis marked in left eye. Optic Neuritis beginning in right eye. Probably of specific origin. Patient is taking K. I. grs. XV q.i. d. and inunctions of Ung. Hydrarg. 60 grains daily.

The case led to a good deal of discussion, but as she is to be shown again this will be held over.

**Tuesday November 29th.**

Dr. Lehmann showed a radiograph, illustrating the anterior wedge-shaped fracture of the spinal column at the level of the 12th dorsal vertebra. These cases are especially interesting as they often show no symptoms. This man came to hospital giving a history of having a box fall on his shoulders while he was stooping forward. He complained of a "sore back." There was some swelling, no deformity and no nervous phenomena. A radiograph showed a crushing of the

anterior surface of the body of the 12th dorsal.

A spine was also shown to illustrate the action of these fractures. Here the force had been greater, the body was crushed, the lamellae fractured, the body of the vertebra dislocated backward giving kyphosis and compression of the cord.

**The Mechanism** of these fractures was at first obscure, but on consideration it was seen that the force acted at the end of a long lever, the fracture taking place at the angle of applexion. This always takes place in the mobile portions of the spine. Dr. Lehmann illustrated this by means of a flexible stick.

**The Diagnosis** of the site of the simple fracture of this sort is not easy, as the nerve roots accompany the cord for some distance, thus confusing any localizing signs that may be present. Hemorrhage may be intra-dural or intra-cordal, and give signs higher up than the lesion. There is no way of diagnosing whether the cord is irreparably damaged or no. The bodies of two vertebrae may be completely crushed and no deformity show, when the patient is lying down.

With regard to treatment, he said, that the less surgery that was done on spinal injuries, the better. It was only the small minority of cases that lent themselves to operation. In this case the man would be kept on his back for at least a month to give the callus a chance to harden. He gave it as his opinion that a great many so-called cases of tuberculous disease of the spine were unrecognized fractures. They usually went on for a year until deformity became fixed and then gave no symptoms. Intractable bedsores were always to be kept in mind when operation on any spinal injury was under consideration. In answer to Dr. Meindl he said that he would always refuse life insurance to any one who had had a spinal lesion, as the bladder and kidneys must of necessity have been endangered.

Dr. W. S. McDonald agreed with this, citing a case that had died of tuberculous disease of the spine two years after a spinal injury, although shortly after the accident nothing

was noted as being wrong.

Dr. R. G. Montgomery gave an account of a case of chronic recurring appendicitis in a young man of 18 years. He had complained of colicky pains, off and on, for 4 years. Examination brought out tenderness and rigidity of the right abdomen. Pain was felt more particularly in the epigastrium. Operation was suggested and accepted. The recovery was complete and uneventful. Dr. Montgomery took this as his text, going on to say that 75% of all intra-abdominal lesions belonged to the appendix—pain, nausea and vomiting were the subjective symptoms; tenderness, fever and leucocytosis the objective. He recommended operation always. This led to a general discussion on the treatment of appendicitis. Dr. Whyte said that from a large country experience, he found most cases there did well on medical treatment. The ones to be feared were those with acute severe onset. A rectal examination should never be omitted. A mass in which fluctuation could be felt called for incision. He reported twelve cases treated in this way with a good result in each case.

Dr. Lehmann said that appendix work showed great eccentricity. Thousands of cases treated either way showed good results, but operation showed a 2% better result than any other way and was, therefore, justified. He thought the subject must be viewed from an intelligent standpoint. It was impossible to lay down laws to fit every practitioner and every case. Text books were written by surgeons for surgeons and pre-supposed reasonably good surroundings. Men in the country were foolish to operate under bad conditions except in case of abscess.

Dr. McDonald thought one kind of case should always be operated on, namely, that in which there had been symptoms of indigestion for a year or so preceding.

Dr. Johnson said that any case that has had a number of attacks is seldom fatal in a succeeding attack, although the general health progressively suffers. The number of attacks, therefore, was an aid to prognosis.

The discussion on the various departments of diphtheria

had unfortunately to be held over as most of the intending speakers were unavoidably absent.

Dr. J. G. Munroe's address on "Post-graduate Work in Chicago" will also be given later.

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## A GREAT OPPORTUNITY FOR PHYSICIANS AND TRAINED NURSES ON THE FOREIGN FIELD.

In a recent number of the New York Times a physician practicing in Greater New York states that the whole trouble with the profession of medicine is that it is overcrowded. "There are more physicians in Greater New York than in all the rest of the State, and five times more than in all Connecticut." He goes on to give figures and reasons why this city is overcrowded with doctors. "There are entirely too many hospitals in New York. One-half of the number would be plenty."

What is true of New York City is true in a large degree of our whole country, especially if compared with the terrible destitution and need in other lands. In this country there is one physician for every five hundred and seventy people, while on the foreign field there are whole regions without a hospital and millions that suffer and die without scientific medical skill or care.

The opportunities for medical work on the foreign field from a purely professional standpoint are unparalleled. A woman graduate of the University of Toronto went to Arabia five years ago, and after a fortnight in the only hospital along a coast of a thousand miles in this pioneer field wrote:

"During my two weeks here we have had twenty operations on the eye, one amputation, the removal of a large tumor, and numerous teeth extracted. In medicine we have had pleurisy, pneumonia, tuberculosis, tetanus, smallpox, leprosy, paraplegia, different varieties of heart-lesions, and other interesting cases. In gynaecology we have the usual run of inflammations and displacements, with atresia for a specialty.

One of the peculiarities of the people here is that they never present themselves for treatment until the disease is far advanced, but of course there is an excuse for them in some cases, as they may have suffered for years before there was a hospital to come to. About seventy-five per cent. of



the people seem to have eye trouble of some sort. Trachoma, trichiasis, ulceration and opacity are the commonest forms; yet inside a week one meets everything from simple ophthalmis to panopthalmitis. In fact, one would have to be a specialist in every branch of medicine and surgery to do justice to the amount and range of material which presents itself."

A trained nurse has a wonderful opportunity not only along professional lines, but as a teacher of hygiene and ordinary care of the sick, as one who can train the natives to become nurses, and so help to overcome the stupendous ignorance and grovelling superstition that prevail so widely in Oriental lands.

The medical missionary and the trained nurse, however, are needed on the foreign field not only in their professional capacity, but because they are able to overcome prejudice, to open doors for the message of Christ and to incarnate that message in a way which is absolutely superior to that of the preacher or teacher. There is a language which the whole human race can understand and which carries a message that every one, sooner or later, desire to hear. The medical missionary is master of this unspoken tongue of the heart. He is welcome in the home of the stranger. The fanatic Mohammedan allows him in the innermost harem; the Mandarin calls him to his palace and the Brahmin leads him into his home. For the Christian physician and the trained nurse there is no chance to invest life that can compare for a moment in influence and power with that on the mission field. As Dr. Post says:

"You take the Bible to the heathen and he may spit upon it, or burn it or throw it out as worthless. You preach the Gospel to him and he may regard you as an hireling who makes preaching a trade. He may meet your arguments with sophistry; your appeals with a sneer. You educate him and he may turn from a heathen to an infidel, but heal his bodily ailments in the name of Christ, and you are sure at least that he will love you and bless you and all that you say will have for him a meaning and power not conveyed by other leaders."

The work of medical missions in the four hundred hospitals and seven hundred and eighty-three dispensaries which are already established on the foreign field from Greenland to India and all the way across, with six million out-patients, is its own justification.

The different Missionary Societies are now calling for more than fifty physicians, men and women, and twenty-six trained nurses.

Particulars regarding the work, qualifications, terms, etc., may be secured from Mr. W. B. Smith, Acting Candidate Secretary, 125 East 27th Street, New York.

#### Physicians Needed Immediately For Missionary Service.

1. A medical workers for Canton, China. Work begun in 1891. Has been strong means of reaching the hearts and homes of the people. More than 20,000 cases have been treated in one year. "It is but a step from faith in the doctor who heals the body to faith in the doctor's God who heals the soul."
2. In the remote field of Bonyeka, Africa, a medical missionary is needed for pioneer work, three years on the field and one at home on furlough. Must be a member of the Christian Church (Disciples).
3. Two physicians with strong gifts and training for pioneer work in the far interior of Africa.
4. A physician and surgeon for the hospital in Teheran, East Persia. This important hospital which has done such splendid work for years is now without anyone in charge.
5. A surgeon for Tabriz, West Persia. There is such a demand for his services that the receipts will more than pay all expenses, including salary of the missionary.
6. Two physicians for German West Africa, to work in a large territory where there are no doctors at present. Hospitals will be erected if the men can be found.
7. A physician for the Refuge of the Insane at Canton, China. This is an important institution. The receipts will more than pay all expenses.
8. A physician for Tayapas, Philippine Islands. A popu-

lation of 214,000 in this province. The town of Tayapas has 14,700.

9. One physician for India.

10. One physician for the Egyptian Sudan. Pioneer work.

11. One physician for Arabia. For a man with pioneer instincts who desires to enter a difficult and, therefore, a specially needy field, Arabia presents a challenge and the promise of hard work.

12. An internship of two years is offered for a graduate from a good medical school in the Good Samaritan Hospital, Mexico. This is a missionary hospital of the Methodist Episcopal Church, which seeks to obey Christ's command to evangelize the world, first healing in every city entered. Only those should apply who desire to devote their lives to the winning of souls for Christ. Nearly all the work is done in the Spanish language and it must be learned. Provision is made for comfortable support.

13. At Anking, China, the hospital will probably have to be closed for a year because the one physician in charge has practically broken down and has come home for furlough. This is an institution of high grade, probably no better equipment in China, with accommodation for a hundred patients, crippled and almost useless because there is only one man where there should be three and where three will be sent if they can be found.

14. At Shanghai, the most capable physician at St. Luke's Hospital has just been ordered home on account of a serious breakdown in health. His return to this country leaves an immense gap. One of the choicest young physicians that can be found is needed for this place.

15. At Manila, P. I., two physicians are needed at once. During the past years both the members of the staff have retired for one reason or another, and a hospital with 30 beds, with a good training school for nurses, is now in the hands of a woman doctor, who gives only part time, and a superintendent of nurses.

17. **West Central Africa.** A large district is without medical care and offers a splendid field for a doctor of unusual versatility and devotion.

17. **South Africa.** At the seaport town of Beira, a physician to take up new work.

18. **Central Turkey.** Dr. Shepard at Aintab needs an associate for his hospital. In addition to all-round professional skill and surgical knowledge, the man should be an earnest Christian worker. Another physician for Turkey will probably be needed within a year.

19. One physician for the hospital at **Shenchowfu, Hunan, China.**

20. One physician for the hospital at **Yochow, Hunan, China.**

For further particulars apply to Mr. Wilbert B. Smith, Acting Candidate Secretary, 125 East 27th Street, New York City.

#### Physicians Needed Immediately For Missionary Service. Women.

1. **South India:** There is urgent need of four thoroughly trained women physicians for the Telugu Mission to be located at Nalgonda, Nellore, Palmur, Hanumakonda.

2. **South China:** A woman to have charge of the Woman's Department of the hospital at Kinhwa.

3. **Central India:** A woman physician and surgeon for a finely equipped hospital at Jhansi.

4. **South China:** A woman physician to take charge of a new hospital at Kityang, 45 miles from Swatow. There is a trained nurse already on the field and patients flock to the hospital. Three years of searching have not yet produced a woman to take charge of the work. The need is urgent.

5. A woman physician for **Hamadan, East Persia.**

6. A woman physician to fill vacancy at **Tabriz, West Persia.** There is a great need for this worker.

7. A woman physician for **Young Kong, South China.**

8. Two woman physicians for stations now without such help and in great need in **West Shantung, China.**

9. A woman physician for Shuntefu, North China.
10. One woman physician for India.
11. One woman physician for Egypt.
12. One physician for Amoy, China.
13. **China:** We are in great need of three thoroughly trained woman physicians for our Foochow Mission. This is one of the great missions of the Board, where the opportunity is unlimited. They will be located as follows: Foochow City, Ing-hok and Shao-wu.
14. **India:** A woman physician for Madura.
15. **India:** Two physicians for Pithoragran and Brindaban.

For further particulars apply to Mr. Wilbert B. Smith, Acting Candidate Secretary, 125 East 27th Street, New York City.

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## MEDICAL NEWS

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The result of the medical inspector's examination of the teeth of the children in the Toronto schools showed a bad state of affairs. Out of 30 children first examined but one had good teeth. Many cities have undertaken the treatment of the pupils believing that the payment of dentists is a good investment.

The countries in which the medical profession stands highest socially are Spain and Portugal where they are at the top of the social ladder—and the social position of the profession is lowest in Italy and Hungary.

Thus does Dr. Bullard in the California Medical Journal sing of "the Lodge Doctor":

Though he knows that contract practice  
Leads to more and more abuse,  
For it steals his colleague's practice,  
Makes himself to be a sneak;  
On his back it puts this label,  
"Taken for two cents a week."

The city of Victoria is calling for tenders for the alteration and additions to the Isolated Hospital beds. The changes to be made will involve an outlay of \$20,000. The provincial government has granted \$5,000 and the city will give \$15,000.

A chair has been endowed in the Northwestern University for the study of infectious diseases. For this purpose Mr. James A. Patten, of Chicago, has given a quarter of a million dollars.

An additional health inspector is to be appointed in Vancouver to take charge of lodging houses and restaurants.

There are this year 92 students from British Columbia at McGill.

Two years of the university course may now be taken in Victoria and 3 years in Vancouver.

"With medicine, surgery and all human acts; success is reached through failure, perfection is attained through the laborious conquest of many imperfections and facility is the ultimate reward of persevering enthusiasm."

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## VITAL STATISTICS

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**Winnipeg, November.**

Disease	Cases.	Deaths.
Typhoid Fever .. .. .	35	3
Scarlet Fever .. .. .	139	19
Diphtheria .. .. .	52	7
Measles .. .. .	23	—
Tuberculosis .. .. .	9	4
Mumps .. .. .	8	..
Erysipelas .. .. .	8	..
Chickenpox .. .. .	15	..
	289	33

17 cases of typhoid came from outside points.

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## PERSONALS

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Dr. and Mrs. Gunn, of Kenora, who have been visiting Vancouver, have returned home.

Dr. Thomas Jamieson has resigned his position as acting physician at Bella Coold.

Dr. H. O. Redden, of Outlook, Sask., has opened a private hospital. He intends having it modern in every respect. A graduate nurse is in attendance.

Dr. Vrooman, of Winnipeg, formerly in charge of the Manitoba Provincial Sanitarium at Ninette, has been appointed medical superintendent of the Tranquille Sanitarium.

A. B. Chandler, M.D., of Victoria, has been appointed coroner at Rossland.

Dr. A. G. Price, who recently arrived from England, has passed the British Columbia examinations and will practice in South Cowichan, Vancouver.

Dr. Watson Dykes and Mrs. Dykes, who have been spending the last few months in England and Edinburgh, have returned.

Dr. Pirie has gone East for the winter, his practice will be in charge of Dr. F. Wilson.

Dr. Wainwright, of Viking, will in future make Holden his headquarters.

Dr. Laidlaw, of Kenora, has been visiting Moose Jaw.

Dr. Hourigan, of Muenster, Sask., has moved to Moose Jaw.

Dr. Cook, of Milestone, Sask., has moved to Weyburn, Sask.

## MARRIAGES.

**Robinson—Hinton.** December 2nd, at the home of Mrs. E. C. Matthews, Dr. Robert C. Robinson and Miss Pearl Hinton, of Summerside, P. E. I., were united in marriage by the Rev. Mr. Haggith. Dr. and Mrs. Robinson have gone to the Coast, on their return they will reside in East Calgary.

**Rothwell—Young.** December 1st, at the residence of the bride's sister, Miss Mabel Young was married to Dr. Oswald Rothwell, of Regina. Dr. and Mrs. Rothwell are visiting Chicago, Toronto and Montreal, and on their return will reside in Regina.

**Francis—Robertson.** Miss Theresa Robertson, daughter of the late Rev. Dr. Robertson, superintendent of Western Missions, was married to Dr. Robert Francis. Dr. and Mrs. Francis, on their return from New York and other Eastern cities, will reside in Calgary.

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## OBITUARY

Dr. H. S. Ford, a well-known Vancouver physician, met a tragic end on Jervis Inlet, Vancouver. He had apparently lost his way while endeavoring to reach shore after having shot a goat. He leaves a wife and baby daughter. Dr. Ford was a graduate of McGill and was in partnership with his uncle Dr. H. E. Ford.

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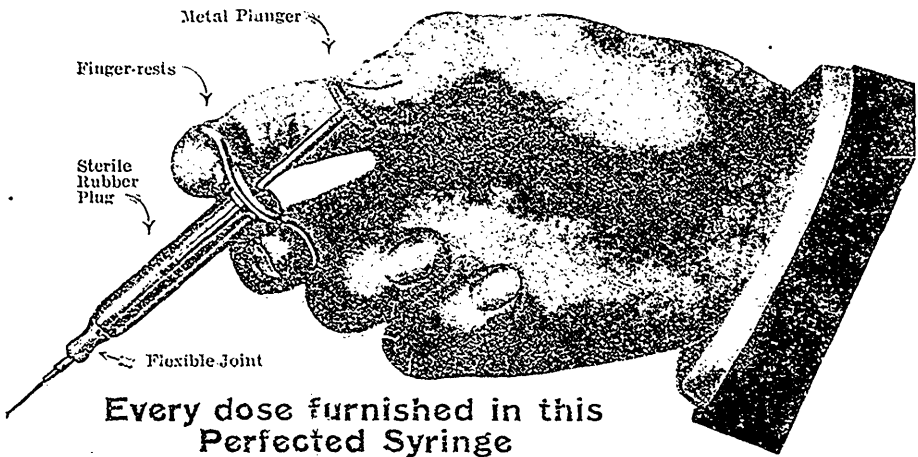
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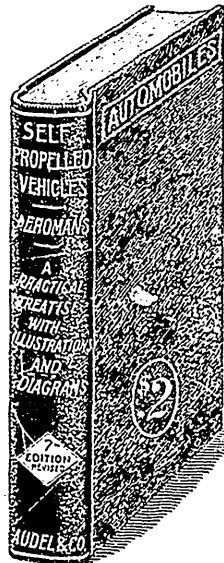
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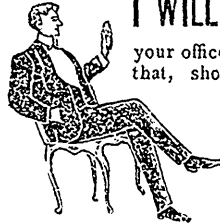
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